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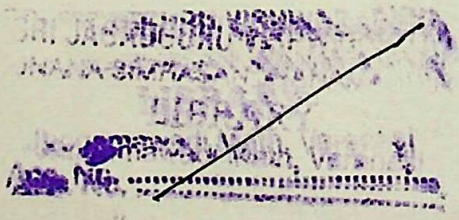

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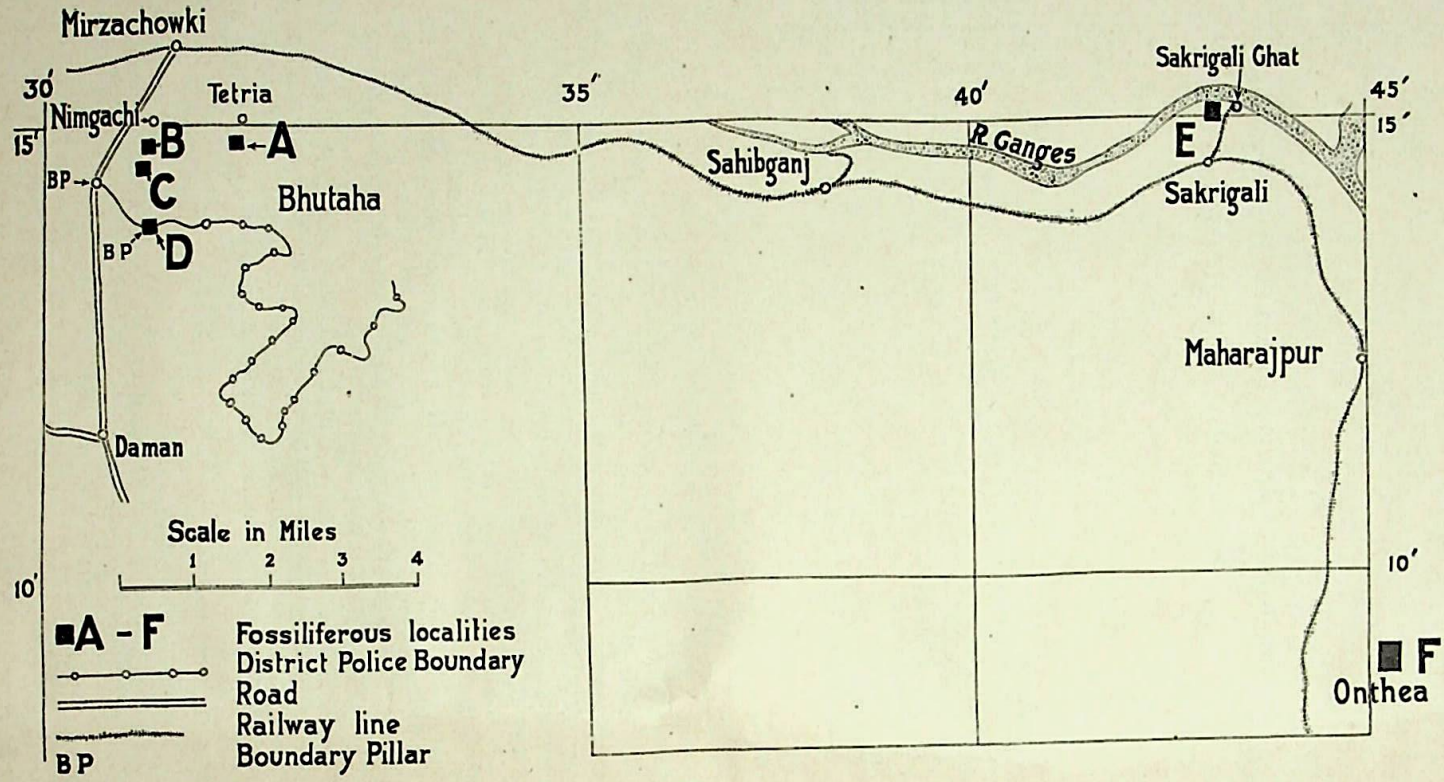

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We wish to thank Professor H. C. Das-Gupta for directing us to the localities near Mirzachowki and the authorities of the Geological Survey of India for permission to compare the type-specimens of *Sphenopteris Hislopi*. To Mr. G. V. Hobson we are indebted for information regarding some fossiliferous localities visited by him. We are grateful also to Prof. T. G. Halle and Dr. R. Florin for critical remarks on several of the species, and to Prof. A. C. Seward, F.R.S., for valuable criticisms made during a revision of the manuscript.

Localities.

Locality A. In situ. Saddle on Butaha Pahar, due south of Tetria Basti and about 1¼ miles S.E. of Mirzachowki station, E.I. Railway (Loop line).

Locality B. In situ, in a white or cream coloured rock exposed on the slope of Balbhadri Pahar, 1¼ miles W.S.W. of Mirzachowki.

Locality C. In situ, in a white or cream coloured rock exposed in a ravine along the outskirts of Balbhadri Pahar, about 2 furlongs south of locality B. Probably the same bed as at B.

Locality D. About 2 miles south of Mirzachowki and ¾ mile from locality C. *Not in situ.* Several good specimens were found in a heap of stones (? boundary pillar) near a quarry.

Locality E. Not in situ. Near ruins at Sakrigali Ghat, about one mile north of Sakrigali station.[1]

Locality F. Not in situ. Onthea village, about 4 miles south of Maharajpur station.

The two other localities are:

(*a*) Nimgachi, one mile S.W of Mirzachowki station.

(*b*) *In situ,* in a white or cream coloured rock (weathering rusty brown) at the head of a ravine about ½ mile east of Nipania village.

While there is no doubt that all the above localities belong to the Rajmahal Series, we regret we are not competent to assign them to their respective horizons in the Series. The flora as a whole seems to support the view that the beds are of middle jurassic age. The distribution of the species at the different localities is given in the accompanying table.

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[1] During a visit in January 1932, Mr. W. N. Edwards located the plant-bearing bed on the slopes of the hill on which the ruins are situated, but our specimens were all found on the surface.

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Table showing Distribution of Species referred to in this Paper.

Species.	Localities.						Nimgachi.	Near Nipania.	Unknown.	References to figures.
	A.	B.	C.	D.	E.	F.				
EQUISETALES.										
Equisetites rajmahalensis O. and M.			...	..	...	12*c*, 22, 145	...	..	124, 125	...
FILICALES.										
Sphenopteris Hislopi O. and M.	...	93*a*, 93*b*	91	41	...	...	...	...	...	... ..
Sphenopteris sp. ...		...			..	6, 11*a*		...	...	.....
Coniopteris hymenophylloides Brongn.		92, 93*a*, 93*b*	73	...	...	...	...	..	...	.....
Marattiopsis macrocarpa Morris sp.	...		..	50, 63, 64	.	12, 18, 20	...	...	...	Pl. 11, figs. 1, 2.
Gleichenites gleichenoides	...		...	45, 47, 48, 58, 65	..	...	...	...	128	.....
Cladophlebis indica O. and M. sp.	...			40, 42, 43, 52, 67*a*, 70			...	...	...	Pl. 11, figs. 3—5.
? *Cladophlebis* sp.	...	...	71, 75	.	.	...	...	..	...	.. ....
CYCADOPHYTA.										
Ptilophyllum cf. *cutchense* McCl. sp.	.	...	...		...	1, 3, 5, 8, 15	...	...	...	Pl. 11—12, figs. 7, 8, 8*a*.
Ptilophyllum acutifolium (O. and M.).	..	94, 95	71, 73, 74	46	25		141	..	...	Pl. 12, fig. 8*b*.
Ptilophyllum tenerrimum (Fst.).	97, 109	...	...	...				.	...	.....
Small cycadean stem ...	...	...	...		...	142				Pl. 12, fig. 14.
Williamsonia cf. *Sewardiana* Sahni.		...	..	...	...		...	144	.	Pl. 16, fig. 38.
Otozamites parallelus (Fst.)	103, 108	..	...	...	...				...	Pl. 12, figs. 10, 11.
Zamites proximus (Fst.) ...		.	.	..	..	4	.	.	...	Pl. 11—12, figs. 12, 13.
Pterophyllum incisum sp. nov.	...	...	..		...	...		..	129	Pl. 13, figs. 15, 16.
Pterophyllum sp. α ...	116, 117	.	...	..		..	...	...	...	Pl. 13, fig. 17.
Pterophyllum sp. β ...	...	...	...	41				...		Pl. 13, fig. 18.
Dictyozamites falcata (Morris).	99, 101, ?107, 115, 118	...	.	...	...			..	..	.....
Dictyozamites indica (Fst.)	...	...	...			4, 7, 9, 24		..		Pl. 13-14, figs. 19—22.
Dictyozamites Hallei sp. nov.	...	...	...		...	15, 143	...	...	...	Pl. 14, figs. 23—25.

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Species.	Localities.						Nimgachi.	Near Nipania.	Unknown.	References to figures.
	A.	B.	C.	D.	E.	F.				
Taeniopteris spatulata (McCl.).	...	95	88	...	...	6, 11*a*, 11*b*	...	...	...	.....
Taeniopteris McClellandi O. and M.	...	...	...	...	...	15	...	...	...	.....
Taeniopteris (? *Nilssonia*) spp.	102, 104, 111, 114	...	..	..	...	142	...		126, 127	.....
Nilssonia (? *Anomozamites*) *fissa* (Fst.).	100, 102, 104, 111	94, 95, 96	89	...	...	...	..	...	126	Pl. 15, figs. 27–29.
Nilssonia Morrisiana (O. and M.).	...	..	...	40, 52, 61, 62	...		...		...	.....
Nilssonia princeps ...	...	...		40, 44, 49, 52, 55, 62, 64, 66	30	2, 5, 14, 16	...	...	...	Pl. 15, fig. 30.
Seed, probably of *Nilssonia* sp.	..	...	..		...	5	...	...	..	Pl. 11, fig. 9.
CONIFERALES.										
Ontheodendron Florini sp. nov.	...	...	...			10*a*, 10*b*	...	..	...	Pl. 15–16, figs. 31–34
Araucarites sp. (cone-scales).	...	96(1), 96(2)	..		...	...	..		...	...—
Elatocladus conferta (O. and M.).	..	...	...	...	...	11*b*	.	..	..	.. ...
Elatocladus tenerrima (Fst.)	...	...	80(?)	...	...	15, 17		...	...	.....
Elatocladus sp. α ...		...	...			19*b*, 23*b*	...		...	... ..
Elatocladus sp. β ...	98	...	...	...	27	7	...			. ...
Brachyphyllum expansum (Sternb.).	112, 113	..	..	...		...	...	...	..	...
INCERTAE.										
Podozamites sp. ...	...	..			...	19*a*, 19*b*, 23*a*	...		..	Pl. 16, fig. 35.
Axis with small scars ...	110	..		...	..	...	...	...	...	Pl. 11, fig 6.
Cf. *Cycadolepis*	...	...	...	...	...	24	...	.	.	.....
Axis with elliptical scars	...			...	...	14, 16	...			Pl 15, fig. 30 right.
Axis with large polygonal scars.	...	...	...	..		142	...	...	..	...
Peculiarly branched axis		...	78		...	...	...	..	...	Pl. 15, figs. 36, 37.
Seeds, probably Gymnospermous.	102, 112	94, 95	...	66*a*, 66*b*		16	...	...	...	.....
Silicified wood (indet.) ...	...	...	..		38, 39	...	...			.....
Finely tuberculate impressions.	...	...	...	...	...	12*b*	...	..	...	.....
Axis with large rhomboid scars.	...	...		...	...	..		...	W. N. Edwards	Pl. 14, fig. 26.

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DESCRIPTION.

EQUISETALES.

Equisetites rajmahalensis O. and M.

(Specimens F 12 *c*, 22, 145; unknown loc. 124, 125.)

Nodal diaphragms with about 30 teeth, and stems with leaf-sheaths of which only the lower (fused) portions are preserved, in the form of moulds of the external surface. The grooves between the fused leaves appear as straight narrow ridges, while the intervening strips, each representing a leaf, are covered with numerous oval tubercles which are probably casts of stomatal depressions. There is a very close resemblance with some of Prof. Seward's figures of *E. ferganensis*,[1] a Jurassic species from Afghanistan and Turkistan which must be closely allied if not identical with *E. rajmahalensis*.[2]

FILICALES.

Sphenopteris Hislopi O. and M.

(Specimens B 93 *a*, 93 *b*; C 91; D 41.)

Sterile fragments comparable with I. 1. XXXI. 1–5.[3]

SPHENOPTERIS sp.

(Specimens F 6, 11 *a*.)

Unidentifiable fragments.

CONIOPTERIS HYMENOPHYLLOIDES Brongn.

(Specimens B 92, 93 *a*, 93 *b*; C 73.)

Sterile fragments closely resembling some published figures of this variable species. Our specimens show well defined pits on the rachis which no doubt mark the points of attachment of ramental scales.

We have no doubt that, as pointed out by Professor Seward, several of the fragments figured by Oldham and Morris from the Rajmahal Hills under the names *Sphenopteris bunburianus* n. sp., and *Sphenopteris* sp. really belong to *C. hymenophylloides*.

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1 Seward (1912), p. 4, pl. 1, figs. 4, 4a, 5, 6, 7.

2 Oldham and Morris (1863), pl. II, figs. 2–5, pl. XXXV, figs. 3-4; Feistmantel (1877), pp. 63–66.

3 References in this form relate to the volume, part, plate, and figures, respectively, of the Fossil Flora of the Gondwana System.

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MARATTIOPSIS MACROCARPA Morris sp.

(Pl. 11, figs. 1, 2.)

(Specimens D 50, 63, 64; F 12, 18, 20.)

1863 *Pecopteris macrocarpa* in Oldham and Morris I. 1. XXVIII. 2, 3.
1877 *Pecopteris* (*Asplenides*) *macrocarpa* in Feistmantel I. 3, I. 1, 2.
1877 *Alethopteris macrocarpa* in Feistmantel I. 3. I. 1, 2.
1877 *Asplenites macrocarpus* in Feistmantel I. 2. XXXVI. 5, 6, 7; I. 2. XXXVII. 3, 4; I. 2. XLVIII. 2.
1920 *Marattiopsis macrocarpa* in Seward and Sahni, p 20. pl. VII, figs. 71, 71 *a*, 71 *b*.

Some of our specimens are better preserved than any previously described; they confirm the view (Seward and Sahni, p. 20) that the fertile organs are synangia of Marattiaceous type and not sori consisting of separate sporangia. All attempts to obtain spores, however, have failed.

GLEICHENITES GLEICHENOIDES O. and M. sp.

(Specimens D 45, 47, 48, 58, 65; unknown loc. 128.)

CLADOPHLEBIS INDICA O. and M. sp.

(Pl. 11, figs. 3–5.)

(Specimens D 40, 42, 43, 52, 67 *a*, 70.)

1863 *Pecopteris* (*Alethopteris*) *indica* n. sp. Oldh. and Morr. in I. 1. XXVII. 1–3, p. 47 (Rajmahal).
1877 *Alethopteris indica* Oldh. and Morr. sp. in Fst. I. 2. XLVI. 3-4, p. 37 (Rajmahal).
1877 *Alethopteris* (*Cladophlebis*) *indica* Oldh. sp. in 1. 3. I. 3–5, text p. 7 (Golapili).
1879 *Alethopteris indica* Oldh. and Morr. in I. 4. I. 1. (fragment), p. 15 (Sripermatur area).

The Rajmahal specimens originally named *Pecopteris* (*Alethopteris*) *indica* cannot be distinguished in the sterile condition from the widely distributed species *Cladophlebis denticulata* which is known from Jurassic strata in England, South Africa, Graham Land, and Australia. But among the several specimens in our collection there are two fertile fronds (D 42 and D 67 *a*) which show that in the arrangement of the sporangia the Indian plant differs from the English specimens

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described by Prof. Seward[1] and later by Prof. Halle[2] under the name *Cladotheca undans*. In the latter the sori are linear and contiguous, the sporangia lying in parallel rows,[3] while in our specimens, wherever the arrangement is at all clearly seen (Pl. 11, fig. 4 right) there are 4–7 sporangia forming a round or elliptical sorus. Our figures show the fertile leaf as seen from above, the lamina being raised into a dome over each sporangium. The margin of the fertile pinna is distinctly crenulate; in the sterile pinnæ it is denticulate or finely crenulate, sometimes entire.

? Cladophlebis sp.

[Specimens C 71, 75 (counterparts).]

This sterile fragment closely resembles some Japanese mesozoic fronds referred by Oishi[4] to *C. nebbensis*. At the same time there is some resemblance with sterile leaves from the Rajmahal Hills figured by Feistmantel[5] as *Marattiopsis macrocarpa*. The upper margin of each pinna curves up at the base so as to overlap the lower margin of the pinna next above.

CYCADOPHYTA.

Genus Ptilophyllum Morris.

In the absence of reliable diagnostic characters all the Indian leaves were provisionally grouped by Seward and Sahni[6] in 1920 under the name *P. acutifolium*. This name was first given by Oldham and Morris to certain fronds from the Rajmahal Hills, with rather long, acutely pointed pinnæ, but was recently adopted in the sense of an aggregate species. While adopting this course it was admitted that a more detailed investigation, particularly if additional cuticular preparations are available, would probably lead to the recognition of well-defined species or varieties[7]. After a careful examination of numerous specimens from the Rajmahal Hills we believe that it is now possible to recognize three distinct species: *P. cf. cutchense* McCl. sp., *P. acutifolium* Morr. sp. (in the narrow sense), and *P. tenerrimum* Feist.

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[1] Seward and Ford (1903), p. 253, pl. 27, fig. 4; Seward (1910), p. 345, fig. 258.
[2] Halle (1911), pls. 1, 2. [3] Halle (1911), p. 6, text-fig. 1.
[4] Oishi (1931), pl. 16, figs. 4, 4*a*.
[5] Feistmantel (1877), I. 2. XXXVI. 5-7; I. 2, XXXVII, 3-4; I. 2. XLVIII. 2.
[6] Seward and Sahni (1920), p. 20.
[7] Seward and Sahni (1920), p. 21.

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P. cf. CUTCHENSE McCl. sp.

(Specimens F 1, 3, 5, 8, 15.)

(Plates 11-12, figs. 7, 8, 8 *a*.)

We propose to adopt this name for fronds corresponding to those found in organic connection with *Bucklandia indica* Seward[1]. In this form the pinnæ are relatively short and have a rounded apex (cf. I. 1. XXI. 3). The anatomy of the rachis as well as of the pinna has to some extent been elucidated by Dr. Bancroft[2]. The cuticle has not yet been found, but several of our specimens from Onthea are preserved in such a fine-grained rock that the epidermal cells and the distribution of the stomata can be clearly made out. The photographs in figs. 7, 8 are from a cast of the undersurface. Usually four rows of epidermal cells are clearly seen over each vein while the bands between the veins show a number of elliptical protuberances probably representing casts of the depressions in which the stomata were sunken. These protuberances are all placed longitudinally (see fig. 8 *a*) and usually two but sometimes three of them are met with in crossing each band.

We thus know not only the anatomy of these leaves but also something of the epidermal characters. Moreover, quite recently one of us has been able to establish a relation between *Bucklandia indica* and certain flowers which have been named *Williamsonia Sewardiana*[3]. We therefore now have very strong grounds for separating under a distinct name at least one of the leaf forms provisionally grouped under the aggregate species *P. acutifolium*. For this we adopt the designation *P. cf. cutchense*[4].

P. ACUTIFOLIUM Morr. sp.

(Pl. 12, fig. 8 *b*.)

(Specimens B 94-95; C 71, 73, 74; D 46; E 25; near Nimgachi 141.)

In the narrow sense this name may be confined to *Ptilophyllum* fronds with long and acutely pointed pinnæ similar to those originally described by Morris under this name (I. 1. XX. 2). The cuticle of this form is still unknown; but as in

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[1] Seward (1900), p. 193 and text-fig. 30; Seward (1917), p. 488, fig. 579.

[2] Bancroft (1913). [3] Sahni (1932).

[4] We prefer not to employ the designation *P. cutchense* McCl. because the identity of the Rajmahal leaves with McClelland's type-specimen cannot be proved as the latter is very badly preserved, showing "no trace of venation" (see Oldham and Morris, 1863, p. 31; Sahni, 1932).

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the specimens of *P. cf. cutchense* just described, the surface characters are sometimes well preserved, and a comparison shows that the two forms are distinct. In *P. acutifolium* the protuberances on the stomatal bands are smaller, isodiametric and more numerous; in crossing each stomatal band 4–6 of them are met with (see fig. 8 *b*).

P. TENERRIMUM Fst.

(Specimens A 97, 109 counterparts.)

This is a comparatively rare and delicate form with narrow pinnæ having straight margins (cf. I. 2. XLI. 3, 3 *a*, and Seward and Sahni, 1920, Pl. V, fig. 47). The epidermal characters have not yet been made out, but the species is too sharply marked off in its gross features to be confused with any other.

SMALL CYCADEAN STEM.

(Pl. 12, fig. 14.)

(Specimen F 142.)

This small stem, covered with an armour of rhomboid leaf-bases, evidently belongs to a cycad; there are alternating zones of broad and narrow rhomboid leaf-cushions as in other fossil as well as living cycads. The leaf-trace bundles are not preserved.

On the same hand-specimen there are fragments of several other plants, e.g. a badly preserved ovulate cone, an axis with large polygonal scars, each having a central transversely elongated depression, leaves of *Ptilophyllum* and of *Taeniopteris* sp. (not *T. spatulata* but a broader form).

WILLIAMONIA sp. cf. W. SEWARDIANA Sahni.

(Plate 16, fig. 38.)

(Specimen from near Nipania 144.)

The figured specimen was found at a new locality about half-a-mile east of Nipania village, in a soft white or cream coloured rock, crowded with the remains of *Ptilophyllum*, *Tæniopteris spatulata*, *Nilssonia* (? *Anomozamites*) *fissa*, etc. Although poorly preserved, the specimen shows a fairly close resemblance in general features with *W. Sewardiana* Sahni[1], recently described by one of us from near Amrapara. The central part (*p*), probably representing the axis of the peduncle, became detached in the specimen, and when pulled out showed

[1] Sahni (1932).

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that it lay in a funnel-shaped cavity enveloped by the bracts. The latter are mostly crushed flat, but in a few cases the rhomboid cross-section is clearly seen. No details of structure can be made out; the fertile part is not preserved.

Otozamites parallelus (Fst.).

(Pl. 12, figs. 10, 11).

[Specimens A 103 and 108 (counterparts).]

The specimen here figured corresponds in detail with the fragment described by Feistmantel[1] from the Vemavaram shales as *Otozamites parallelus*. This species differs from *Otozamites Hislopi* in the venation of the pinnæ. In *O. Hislopi* only 7 or 8 veins are met with in crossing the middle of a pinna and nearly all the veins are divergent, while in *O. parallelus* there are as many as 12–14 veins and the four or five veins along the middle are almost parallel, lending to the leaf a deceptive resemblance with *Ptilophyllum*. *O. parallelus* has not previously been recorded from the Rajmahal series.

Zamites proximus Est.

(Pl. 11-12, figs. 12, 13.)

(Specimen F 4.)

1877 *Zamites proximus* Fst. . . . Feistmantel I. 2. XLI. 1, 2, 2*a* (but not 1. 4. VII. 1, 2).

Our specimen shows on the upper side of the rachis two alternating rows of linear scars of pinnæ. In each scar about 6 distinct pits mark the positions of the vascular bundles. Feistmantel's Vemavaram[2] specimens which he identifies with his *Zamites proximus* from the Rajmahal Hills belong in our opinion to a different genus.

Pterophyllum incisum sp. nov.

(Pl. 13, figs. 15, 16.)

(Specimen No. 129, locality not known, probably A.)

Diagnosis.—Frond pinnate, pinnæ linear, with parallel margins, usually about 4 mm. wide by about 3 to 4½ cm. long in the middle part of the frond; veins parallel, mostly unbranched, 6–8 in each pinna; tips of pinnæ often incised once or twice in an equal or unequal manner; teeth bluntly pointed,

[1] Feistmantel (1879), I. 4. VIII. 5, 5*a*, p. 22.
[2] Feistmantel (1879), I. 4. VII. 1, 2.

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with 1–3 veins in each. When two or three veins enter a tooth they converge at the apex.

This incomplete but fairly well-preserved frond is referred to a new species chiefly on account of the incised tips of the pinnæ, which mark it as a type intermediate between *Pterophyllum* in the narrow sense[1] and *Anomozamites*.

PTEROPHYLLUM sp. α.

(Pl. 13, fig. 17.)

(Specimens A 116, 117.)

These are two indifferently preserved impressions of large pinnate leaves of the *Pterophyllum* type as defined by Prof. Seward, that is, with the pinnæ attached laterally to the rachis and not on its upper side as in *Zamites*. The pinnæ come off from the rachis almost at right angles and are attached by their entire base, which is neither contracted nor expanded. The figured specimen (A 116) is the smaller and better preserved of the two; it represents the distal half of the leaf. In the larger leaf the rachis is about 5 mm. thick in the widest part and the pinnæ (about 5 mm. broad by at least 4·5 cm. long) show indistinct parallel veins. In the smaller leaf about five parallel veins can be made out in each pinna; there are no bifurcations or anastomoses.

Our specimens are not sufficiently well preserved to admit of specific identification.

PTEROPHYLLUM sp. β.

(Pl. 13, fig. 18.)

(Specimen D 41.)

A large pinnate frond with a rachis 3½ to 6 mm. broad and relatively stiff linear pinnæ attached to it somewhat obliquely by their full width. The appearance of the leaf suggests a coriaceous habit. The pinnæ are 3-4 mm. wide and at least 4 cm. long, with parallel margins. The tip is not preserved. There are clear indications of 4 or 5 parallel veins in several of the pinnæ. Faint longitudinal striations are seen on the naked rachis. Our specimen bears a close resemblance in habit to *Dioonites Cornallianus* (Göppert) Bornemann, as described by L. F. Ward[2].

DICTYOZAMITES, Oldham.

When this genus was founded in 1862 the only species known was *D. falcata*, based upon some specimens from Amrapara. Since then the genus has been found to have had a

[1] As defined in Seward (1917), p. 549.
[2] Ward (1900), p. 244, pl. 28, fig. 2.

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wide distribution in the Jurassic: England, Bornholm, Japan, Korea, Tierra del Fuego[1]. India still remains the main centre of distribution, with three of the five known species, found at several localities in the Rajmahal Hills, at Golapili near Ellore, and at several other places extending as far as the Trichinopoly district.

Dictyozamites falcata (Morris).

(Specimens A 99, 101, ? 107, 115, 118.)

1863 *Dictyopteris falcata* in Oldham and Morris, I. 1. XXIV. 1.

1863 *Dictyopteris falcata* var. *obtusifolia* Morris, in Oldham and Morris, I. 1. XXIV. 2.

1863 *Dictyozamites*, Oldham, in Oldham and Morris, I. 1, p. 40.

1877 *Dictyozamites indica* (Feist.) in Feistmantel, I. 3. II. 5-6 (Golapili).

1879 *Dictyozamites indica* (Feist.) in Feistmantel, I. 4. III. 1, 2, 5, 6; I. 4. IV. 1–8; 1, 4. V. 1–12 (Madras Coast).

1917 *Dictyozamites falcata* (Morris) in Seward, Foss. Pl. III, p. 546.

From locality A we have several good specimens showing the characters of Morris's original specimens of *Dictyopteris falcata* which is now known as *Dictyozamites falcata* (Morris)[2]. In this species we include only the typical specimens detailed in the synonymy, and not the small fronds from Murrero to which Feistmantel gave the name *D. indica*.

Our specimen 107 differs slightly from typical fronds of this species, in that the vein meshes along the border of the pinna are not smaller than those in the middle; the meshes on each pinna are also on the whole much fewer in number than in the other specimens.

Dictyozamites indica (Fst.).

(Pl. 13-14, figs. 19–22.)

(Specimens F 4, 7, 9, 24.)

1877 *Dictyozamites indica* Fst. in Feistmantel, 1, 2. XLVI. 7, 8. Text, page 70 (Murrero).

1879 *Dictyozamites indica* Fst. in Feistmantel I. 4. III. 3, 4 (Madras Coast).

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[1] See Seward (1903*a*); Nathorst (1889); Yabe (1905); Halle (1912, 1913); Seward (1917), p. 546 ff.

[2] This species is the commonest fossil in some grey, more or less indurated clays, exposed about ½ mile due west of Paharpur Chhota, a village 1½ miles N.W. of Amrapara.

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Diagnosis.—Pinnæ similar in form to those of *Dictyozamites falcata* but much smaller in size (2-3 mm. by 9-10 mm.). Venation as in *D. falcata* except that the meshes are much smaller and only about 10 to 11 veins are met with in crossing the pinna, while in *D. falcata* there may be 16 to 20.

The name *D. indica* was first proposed in 1877 by Feistmantel for some small fronds from Murrero. Our specimens from Onthea are identical in size, form, and venation with Feistmantel's Murrero fronds which in our opinion represent a distinct species. We accordingly adopt the name *D. indica* (Fst.) for the smaller form, reserving the older name *D. falcata* (Morris) for the much larger leaves from Amrapara, and from Golapili. Among Feistmantel's Madras Coast specimens there are two fronds of small size (I. 4. III. 3, 4) which agree very closely with his Murrero specimens and with our Onthea ones. They may therefore be retained under *D. indica*.

Dictyozamites Hallei sp. nov.

(Pl. 14, figs. 23–25.)

[Specimens 143, F 15 (several leaves).]

Diagnosis.—Habit *Ptilophyllum*-like, pinnæ crowded, stiff and linear, straight or very slightly falcate, 2 to 2·5 × 15 mm., gradually narrowed to a rounded apex, base auriculate, oblique. Vein meshes along the median line very narrow, the veins here being parallel, with only an occasional anastomosis. About 7-8 nerves are met with in crossing the middle part of the pinna.

This well-marked species is represented by several leaves, all found at locality F (Onthea). The species is locally abundant, but appears to have been overlooked in the past owing to its superficial similarity with *Ptilophyllum*, which is very striking.

Professor T. G. Halle, who has examined our figured specimens, agrees that they should be referred to a new species; we have pleasure in naming it *D. Hallei* sp. nov.

Tæniopteris spatulata (McCl.).

(Specimens B 95; C 88; F 6, 11 *a*, 11 *b*.)

In some silicified leaves of this species from near Nipania, found by Mr. Hobson of the Geological Survey, a horizontal series of mesarch bundles of the cycadean type have been observed by one of us[1]. This seems to place beyond doubt the cycadean affinities of this plant, already suspected on other

[1] These specimens (and some others collected since) are being described in a separate paper.

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grounds. None of our specimens are petrified, but many of them show clearly on the broad midrib a number of parallel veins which no doubt correspond to the vascular bundles just referred to.

We are inclined to think that the leaves from Tonkin described by Zeiller[1] under the name *T. spatulata* (McCl.) belong to a distinct species. The veins in Zeiller's specimens are very prominent, almost like transverse ribs, a feature which we do not find in any of the numerous specimens we have examined.

TÆNIOPTERIS MCCLELLANDI O. and M. sp.

(Specimen F 15.)

1863 *Stangerites McClellandi* O. and M. sp. in I. 1. XXIII. 1–3.
1869 *Angiopteridium McClellandi* (Morris) in Schimper. Traité I, p. 605.
1877 *Angiopteridium McClellandi* in Feistmantel I. 2. XLVI. 5, 6.
1877 *Angiopteridium McClellandi* in Feistmantel I. 3, p. 10.
1879 *Angiopteridium McClellandi* in Feistmantel I. 4. I. 14–16; and 1, 4. II. 4.
1922 *Tæniopteris McClellandi* in Sahni, Table II.

We prefer to adopt the old generic name *Tæniopteris* (Brongniart 1828) both on the ground of priority and because it does not imply affinities which in the absence of fructifications cannot be proved. As regards the specific name, Oldham and Morris hinted (1863, p. 33) that McClelland's fragmentary specimen, described under the name *Tæniopteris acuminata*[2] may be identical with their *Stangerites McClellandi*. If this identity could be proved, the older name *acuminata* should stand. But assuming that McClelland's fig. 2 is correct, there would be no doubt that the two plants are distinct, for McClelland's figure shows numerous anastomosing veins. In view of this uncertainty the specific name *McClellandi* is here adopted.

Our specimen shows several pinnæ in relation to a thick cylindrical rachis with the characteristic joints and longitudinal ridges.

TÆNIOPTERIS (? NILSSONIA) spp.

(Specimens A 102, 104, 111, 114; F 142; unknown locality 126-127.)

These are all fragments which cannot be placed definitely in either *Tæniopteris* or *Nilssonia*.

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[1] Zeiller (1902), pl. XIII, figs. 6–12.
[2] McClelland (1850), pl. XVI, fig. 2, p. 53.

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NILSSONIA (? ANOMOZAMITES) FISSA (Fst.)

(Pl. 15, figs. 27–29.)

(Specimens A 100, 102, 104, 111; B 94, 95, 96; C 89; unknown locality 126.)

1863 *Pterophyllum* ? Oldham and Morris I. 1. XII. 2–5.
1877 *Pterophyllum fissum* Fst. I. 2. XXXIX. 2–4.
1879 *Anomozamites fissus* Fst. I. 4. VII. 11–13 (Vemavaram).
1886 *Anomozamites fissus* Fst. IV. 2, p. 36.
1920 *Nilssonia fissa* Seward and Sahni . . . p. 32, pl. IV, fig. 39.

Localities B and C are specially rich in this species, of which many well-preserved specimens were found showing the venation and characteristically incised lamina, narrowing proximally into the petiole. The midrib is 1½ mm. to 2 mm. in width, and shows longitudinal striations which no doubt represent vascular bundles, as in *Tæniopteris spatulata* (see above).

In 1920 the species was transferred from *Anomozamites* to *Nilssonia*[1]; although the lamina was not continuous over the rachis, it was believed that the specimen was seen from the lower side. In our numerous fresh specimens, however, the lamina is never continuous over the rachis, and as it seems unlikely that all these specimens are seen from the lower side the previous reference to *Anomozamites* may after all have been correct.

NILSSONIA MORRISIANA (O. and M.)

(Specimens D 40, 52, 61, 62.)

NILSSONIA PRINCEPS.

(Pl. 15, fig. 30.)

(Specimens D 40, 44, 49, 52, 55, 62, 64, 66; E 30; F 2, 5, 14, 16.)

The figured specimen is the apical part of a frond (F 16) showing a well-preserved denticulate margin.

Seed probably of NILSSONIA *sp.*

(Pl. 11, fig. 9.)

(Specimen F 5.)

The concave impression figured is evidently one of the two valves of a bicarinate seed, the shell having split along the

[1] Seward and Sahni (1920), p. 32.

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principal plane. The external surface of the shell was covered with warts. The chalazal and micropylar ends are well defined, the testa being distinctly thicker at the micropylar end.

From Rhætic and Jurassic beds in other countries very similar seeds have been attributed by Nathorst and Gothan to species of *Nilssonia* with which they were found associated.

In 1909, Nathorst described several species of *Nilssonia* associated with rather characteristic tuberculate seed impressions. Some of these seeds, which in surface characters are not unlike the seed here figured, he attributed to *N. pterophylloides*, others of a spherical form he assigned to *N. brevis* and *N. polymorpha*.[1]

In 1914, Gothan[2] figured several seeds with a tuberculate testa as the seeds of *N. acuminata*. At the same time he expressed the view (*loc. cit.*, p. 40) that some cycadophyte seeds described by Krasser[3] from Sardinia also belonged to the same genus, which is known to occur in the form of leaf impressions in the Sardinian rocks.

Quite recently Harris[4] has attributed to *N. incisoserrata*, a Greenland species newly described by him, some tuberculate seeds, sometimes found attached in pairs as in *Beania*. He finds that the tubercles are due to masses of resin embedded in the integument, and brings out much other structural detail.

It is very probable that our seed also belongs to a species of *Nilssonia*, a genus strongly represented in the Rajmahal series. On the same block as the seed there is a leaf of *N. princeps*, but it would be unwise without further evidence to assign the seed to this species. Further search at Onthea may reveal more specimens, possibly attached, and may indirectly throw light upon the affinities of *Beania gracilis* and similar forms, which have been variously assigned to the Ginkgoales and to the Cycadophyta.[5]

CONIFERALES.

Ontheodendron gen. nov.

Generic features. Lax cylindrical cones bearing one-seeded ligulate scales placed parallel to the axis. Ovule detachable from the scale, placed in an adaxial pit near the base.

This genus is based on some fragmentary specimens of ovuliferous cones, hitherto found only at Onthea (locality F, see map). In their fundamental characters it resembles the Araucarineæ, for the scales are ligulate, with a single adaxially placed ovule.

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[1] Nathorst (1909), p. 25, pl. 6, figs. 1, 8 and 14–16; see also Seward (1917), p. 567, fig. 619A.

[2] Gothan (1914), p. 39, pl. 30, figs. 2–4; see also Gothan (1921), pp. 294, 295.

[3] Krasser (1912), pl. II.

[4] Harris (1932), p. 52, pl. 5, figs. 3–6, 15.

[5] Seward (1917), pp. 502-503.

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At first we were inclined to refer the specimens provisionally to *Araucarites*.[1] But the lax, cylindrical form of the strobilus, with the scales placed parallel to the axis, and the fact that the seeds were not completely embedded in the scale as in *Araucaria*, are features sufficiently distinct to justify the creation of a new genus. The scales are not bent at right angles, into a horizontal seed-bearing part and an up-turned distal limb, but the seed-bearing part is continued without a change of angle into the much elongated gradually tapering distal part of the scale. Only one species is yet known.

Ontheodendron Florini sp. nov.

(Pl. 15-16, figs. 31–34.)

(Specimens F 10*a*, 10*b*.)

Diagnosis. Cones at least 8 cm. long by 2 cm. broad. Outlines of scales varying from broadly ovate at the base of the cone, to ovate-lanceolate and finally linear-lanceolate in the middle and distal parts, respectively. The seeds vary in shape with the form of the subtending scale, from broadly ovate to narrowly elliptical. Ligule narrowly linear.

We have fragments of three different cones referable to this species, all of which are shown in our figures. They were found in a single block at Onthea. The main specimen (F 10*a*) is shown natural size in pl. 16, fig. 31; it includes the middle and upper part of the strobilus, where the scales are lanceolate or linear-lanceolate. Fig. 32 shows what is, no doubt, the basal part of a cone of the same species; the scales as well as the ovules are here relatively much shorter and broader. The prolonged apices of the scales are only partially preserved; their surface shows a faint longitudinal striation. In the scales shown in figs. 31, 32 there is no clear evidence of a ligule but in fig. 33 is drawn part of a third cone in which each scale shows a distinct median groove which probably indicates the presence of a ligule. In these scales and in the detached scale shown in fig. 34 the ovule appears to have dropped off, but its position is marked by a distinct rhomboid depression which is continued distally into the median groove just mentioned. The fact that the ovule could become detached from the scale shows that it was not fused to the latter, as in *Araucaria*, but was placed freely upon it, although partly sunken in a pit. The appearance of the specimens shown in fig. 31, 32, where the ovules are seen *in situ*, also confirms this view.

As regards the affinities of the plant, they seem to be clearly with the Araucarineæ. The elongated form and lax

[1] Sahni and Rao (1932).

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character of the "cone" is no doubt in striking contrast with the cones of any known members of that group, whether living or fossil.[1] But the general characters of the individual scale, with the single adaxially placed ovule, may be taken as a safe index of araucarian affinity.

A comparison with detached scales such as *Araucarites cutchensis* and similar species from Jurassic rocks in various countries, is not quite satisfactory. Firstly, there is no means of comparison with any possible variations in the form of the scales in different parts of the cone; secondly, there is no clear evidence that the ovules in *A. cutchensis*, etc. were detachable as in our species.

We have pleasure in naming the Rajmahal cones after Dr. R. Florin of Stockholm.

Araucarites sp.

[Specimens B 96 (1), B 96 (2).]

Triangular impressions, probably detached ovuliferous scales of one of the Araucarineæ. An oval depression or elevation (as the case may be) along middle probably marks the position of a seed.

Elatocladus conferta (O. and M.).

(Specimen F 11 *b*.)

Elatocladus tenerrima (Fst.).

(Specimens C 80 (?); F 15, 17.)

Elatocladus sp. *α*.

(Specimens F 19 *b*, 23 *b*.)

A shoot no doubt specifically identical with one figured by Feistmantel[2] wrongly under the name *Palissya indica*. As stated elsewhere[3] Feistmantel's specimen recalls the tertiary species *Sequoites langsdorfii*.

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[1] The only fossil cones known to us which are referable to this group are of the compact type: (*a*) *Araucarites sphærocarpus* Carr. (see Seward, 1919, p. 256, fig. 737); (*b*) *Araucarites ooliticus* (Carr.), *ibid.*, fig. 738-739; (*c*) *Araucarites mesozoica* Walkom (1918, p. 11, pl. 2, fig. 1); *Araucarites* sp., *ibid.*, pl. 2, fig. 10; *Araucarites mirabilis* Spegazzini (see Spegazzini 1924, Gothan 1925 under the name *Araucaria Windhauseni*); *Conites araucarioides* Gothan (1927, pl. XV).

[2] Feistmantel (1881), p. 151, pl. II, figs. 3, 3*a*.

[3] Sahni (1928), pp. 15-16.

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ELATOCLADUS sp. *β*.

(Specimen A 98.)

A much branched shoot with linear slightly falcate leaves having decurrent bases. On a few of the leaves a single median vein is faintly visible. The preservation is too bad to admit of a specific determination.

BRACHYPHYLLUM EXPANSUM (Sternb.).

(Specimens A 112, 113; E 27; F 7.)

INCERTÆ.

PODOZAMITES sp.

(Pl. 16, fig. 35.)

(Specimens F 19*a*, 19*b*, 23*a*.)

The impressions shown in the photograph are linear, about 1 cm. wide in the middle, narrowing gradually towards the two ends. The texture appears to have been coriaceous, the lamina being marked with 7 or 8 coarse parallel veins.

It is not possible to say whether the fragments represent simple leaves or pinnæ of compound leaves. Their systematic position is therefore quite uncertain. They may for the present be placed in the form genus *Podozamites*, which includes foliar remains of both cycads and conifers. In their coriaceous texture and prominent veins, which give them an appearance like the pinnæ of some modern palm leaves, they differ markedly from the impressions from the Jabbalpur beds referred by Feistmantel to *P. lanceolatus*.[1] Our specimens agree closely and are probably specifically identical with some fragments regarded by Oldham and Morris[2] (I. 1. XV. 3) as the pinnæ of "*Pterophyllum Medlicottianum*". On the whole we are inclined to the view that they are cycadean rather than coniferous.

AXIS WITH SMALL SCARS.

(Pl. 11, fig. 6.)

(Specimen A 110.)

Fragments of an axis bearing small oval or elliptic scars at irregular intervals. There is no evidence as to the nature of the scars, hence no views can be expressed as to the affinities of the plant, but reference may be made to more or less similar

[1] Feistmantel (1877 *a*), II. 2. IV. 1–10.
[2] Oldham and Morris (1863).

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structure previously mentioned in the literature. Rhizome-like organs of unknown affinity have been figured by Feistmantel from the Umia beds of Kach[1] and from the Athgarh sandstone (Jurassic) near Cuttack.[2] An undoubted fern rhizome which bears stumps of leaves as well as scars of adventitious roots was figured by Prof. Seward from the Jurassic of Sutherland[3]. *Rhizomopteris Etheridgei Sew.* from the Jurassic of Victoria[4] is also probably a fern, for it bears oval or reniform scars with a C-shaped leaf trace.

cf. Cycadolepis Saporta.

(Specimen F 24.)

Two flat scale-like organs marked with divergent occasionally forked veins. The margin is not preserved. It is probable that these fragments are specifically identical with those which were figured by Feistmantel from the Rajmahal Hills[5] under the name *Cyclopteris Oldhamia* Fst., but whose real affinities are quite uncertain. Comparable structures have been recorded by Prof. Seward[6] from the Jurassic of Sutherland under the name *Aphlebia* sp., and also from the Jurassic of Cape Colony[7] under the name *Cycadolepis Jenkinsiana* (Tate).

On the whole our specimens show a greater resemblance with the South African scales than with that from Sutherland, but in admitting this resemblance we do not wish to imply that they necessarily belong to a Cycadean plant. The reference of Feistmantel's Rajmahal specimens to *Cyclopteris* does not seem to us to be at all justified.

Axis with elliptical scars.

(Pl. 15, fig. 30 right.)

(Specimens F 14, 16 counterparts.)

A cylindrical axis bearing a number of raised elliptical scars, each having a central dot. The scars are of almost uniform size and shape (1·5 by about 1 mm.) and remind one of the clean scars left by the deciduous needles of *Abies*, the central dot representing a vascular bundle.

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1 Feistmantel (1876), II. 1. IV. 4.
2 Feistmantel (1877 *b*), *Rec. G. S. I.*, vol. X, p. 70; figs. 2–6.
3 Seward (1911), p. 671, pl. II, fig. 40.
4 Seward (1904), pl. XVII, figs. 31, 32.
5 Feistmantel (1877), I. 2. XXXVI. 1-2; I. 2. XXXVII. 5-6.
6 Seward (1911), p. 674, Text-fig. 6.
7 Seward (1903), p. 29, pl. 4, figs. 3–6.

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Axis with large polygonal scars.

(Specimen F 142.)

The scars are usually hexagonal and contiguous, the lines of separation being very distinct though thin. In the centre of each polygonal area there is a transversely elongated depression. The specimen seems to represent a mould from the surface of a stem bearing large appressed leaves, the central depression probably representing the leaf tip. The hexagonal scars also remind one of cupressineous cone-scales, each with a projecting umbo, but the form of the axis is not like that of a cone.

Peculiarly branched axis of unknown plant.

(Pl. 15, figs. 36, 37.)

(Specimen C 78.)

Several of the branches have peculiar processes on the lower side, just near their points of origin from the main axis.

Axis with large rhomboid scars.

(Pl. 14, fig. 26.)

Found by Mr. W. N. Edwards, who kindly allowed us to figure it. No definite opinion can be expressed about the affinities of this fossil. The general appearance recalls that of some *Bucklandia* stems (e.g. *B. Yatesii*)[1] but the rhomboid areas show no sign of vascular bundles, and there is no proof that the stem belongs to a cycad. It is not impossible that it is a coniferous axis bearing large appressed leaves of the *Brachyphyllum* type.

Seeds, probably Gymnospermous.

(Specimens A 102, 112; B 94, 95; D 66 *a*, 66 *b*; F 16.)

Silicified Wood.

(Specimens E 38, 39.)

Probably coniferous, but too badly preserved to be identified.

Finely tuberculate flat impressions.

(Specimen F 12 *b*.)

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[1] Seward (1917), p. 485, fig. 577.

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Explanation of Plates 11–16.

(The figured specimens with the exception of the original of fig. 26 in pl. 14 are preserved at the Botanical Department, Lucknow University.)

Plates 11-12.

Fig. 1. Marattiopsis macrocarpa Morris sp. Fertile pinnæ. F 18. Natural size.
Fig. 2. *Ibid.* Fertile pinnæ showing synangia. F 18. × 3.
Fig. 3. Cladophlebis indica O. and M. sp. Fertile and sterile pinnæ. D 67. Natural size.
Fig. 4. *Ibid.* Some fertile pinnæ showing sori. D 67. × 3.
Fig. 5. *Ibid.* Fertile pinnæ D 67. × 7.
Fig. 6. Axis with scars. A 110. Natural size.
Fig. 7. Ptilophyllum. cf. cutchense McCl. sp. F 5. Natural size.
Fig. 8. *Ibid.* Two pinnæ from the same specimen. × 8.
Fig. 8 *a*. *Ibid.* Diagrammatic sketch showing surface characters. × *ca.* 19.
Fig. 8 *b*. Ptilophyllum acutifolium (O. and M.) near Nimgachi, 141. Diagrammatic sketch showing surface characters. × *ca.* 22.
Fig. 9. Seed, prob. of Nilssonia sp. F 5, × 5.
Fig. 10. Otozamites parallelus (Fst.). A portion of a frond. A 103. Natural size..
Fig. 11. *Ibid.* A few pinnæ showing the venation. A 103. × 2½.
Fig. 12. Zamites proximus. Fst. A few pinnæ. F 4. Natural size.
Fig. 13. Zamites proximus. Fst. The same, showing the veins and scars of pinnæ. × 3.
Fig. 14. Cycadean stem, showing alternating zones of broad and narrow scars. F 141. Natural size.

Plates 13-14.

Fig. 15. Pterophyllum incisum sp. nov. Specimen 129, loc. unknown. Natural size.
Fig. 16. *Ibid.* A few pinnæ showing the incised tips. × 3.
Fig. 17. Pterophyllum sp. α. A 116. Natural size.
Fig. 18. *Ibid.* sp. β. D 41. Natural size.
Fig. 19. Dictyozamites indica (Fst.) A part of a frond. F 9. Natural size.
Fig. 20. *Ibid.* A few pinnæ from the same specimen. F 9. × 10.
Fig. 21. *Ibid.* An unusually small leaf. F 7. Natural size.
Fig. 22. *Ibid.* Basal part of a frond. F 9. Natural size.
Fig. 23. Dictyozamites Hallei. sp. nov. Parts of two fronds. F 15. Natural size.
Fig. 24. *Ibid.* F 143. Natural size.
Fig. 25. *Ibid.* A few pinnæ showing the venation. F 15. × 7.
Fig. 26. Axis with large rhomboid scars, found by Mr. W. N. Edwards. Natural size.

Plates 15-16.

Fig. 27. Nilssonia (? Anomozamites) fissa (Fst.), basal part of a leaf. B 96 (1). Natural size.
Fig. 28. *Ibid.* B 96 (2). Natural size.
Fig. 29. *Ibid.* Part of the above specimen showing details. × 4.
Fig. 30. Nilssonia princeps. Part of a leaf showing the denticulate margin. On the right is an axis with elliptical scars. F 16. Natural size.

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Fig. 31. ONTHEODENDRON FLORINI sp. nov. A lax strobilus showing ovuliferous scales. F 10 (a). Natural size.
Fig. 32. *Ibid.* The basal part of another strobilus. (F 10 b). Natural size.
Fig. 33. *Ibid.* Part of a third strobilus. F 10 b. Natural size.
Fig. 34. *Ibid.* Detached scale. F 10 b. Natural size.
Fig. 35. PODOZAMITES sp. F 19. Natural size.
Fig. 36. Peculiarly branched axis. C 78. Natural size.
Fig. 37. *Ibid.* C 78. × 3.
Fig. 38. WILLIAMSONIA sp. cf. W. SEWARDIANA Sahni. Near Nipania. × 2.

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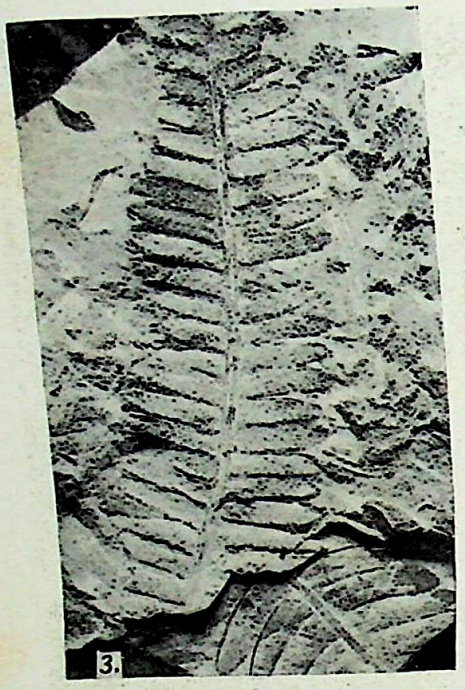
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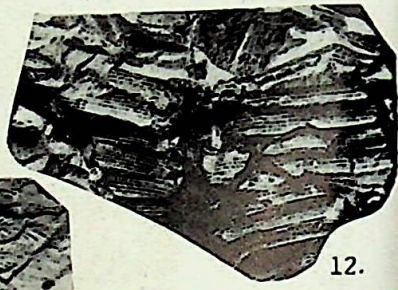
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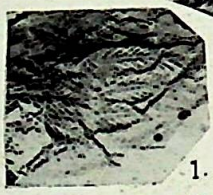
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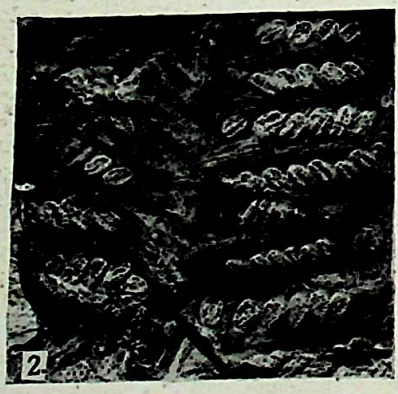
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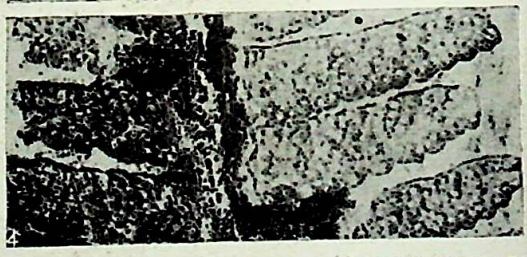
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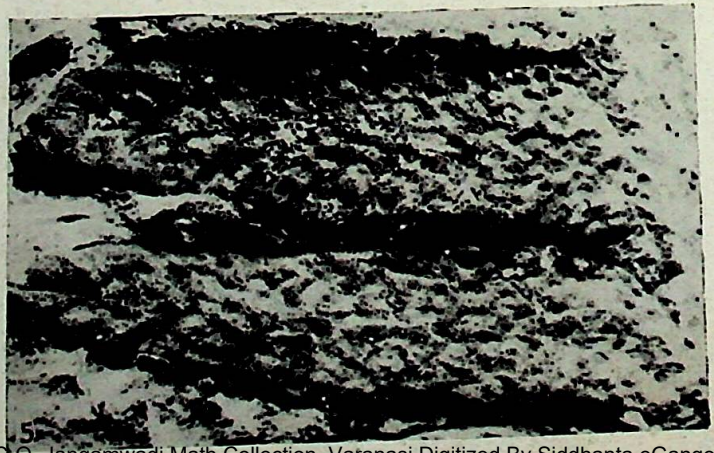
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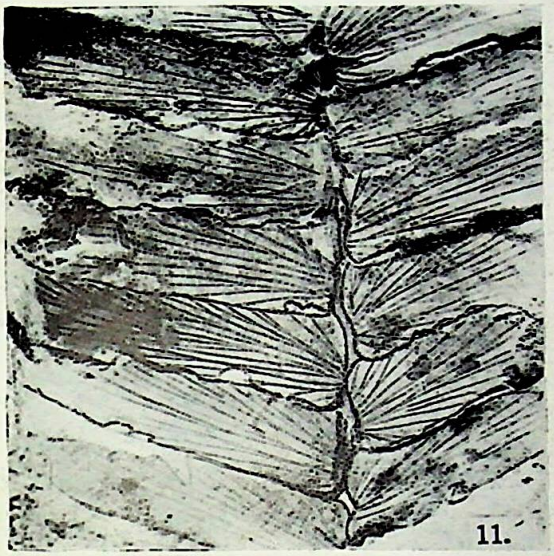
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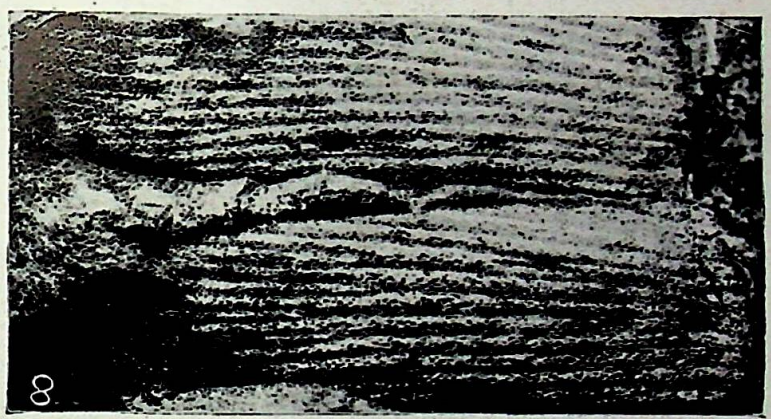
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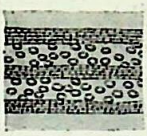
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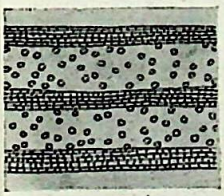
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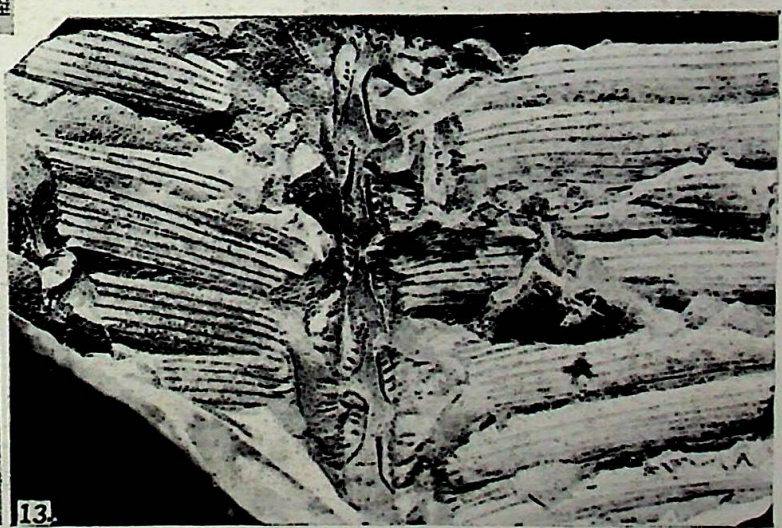
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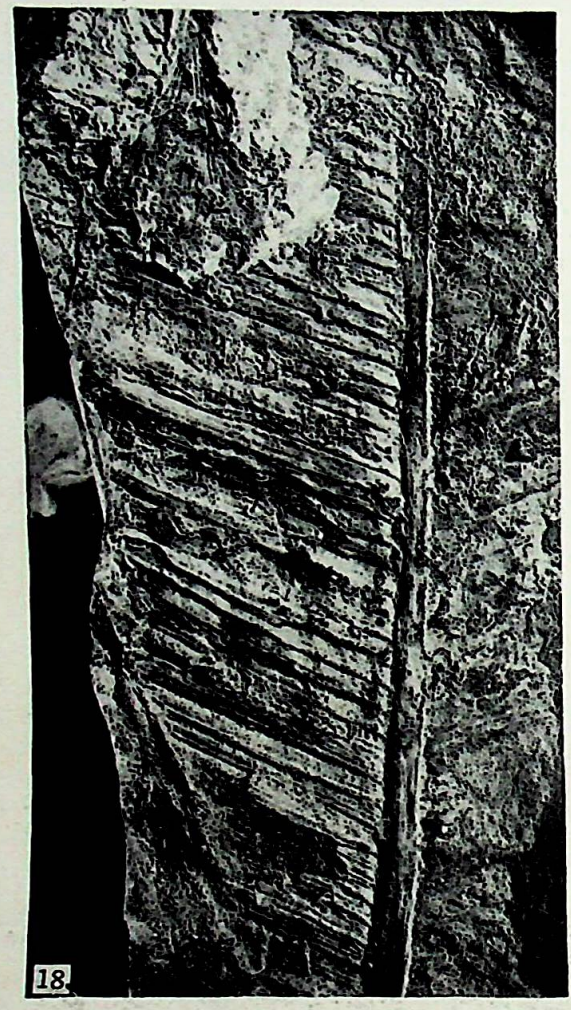
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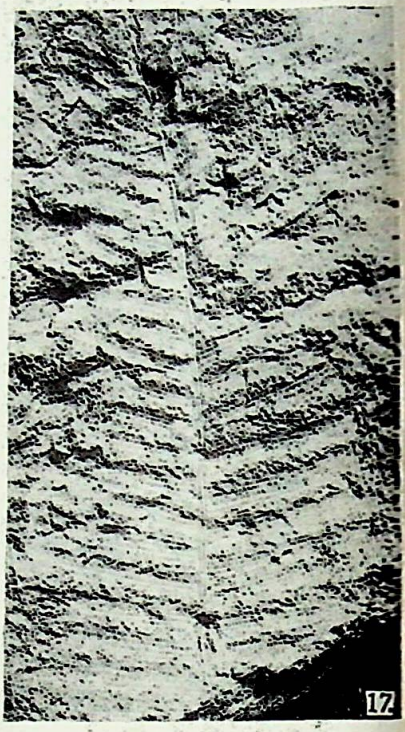
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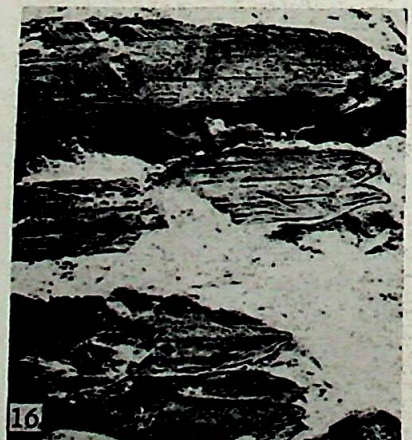
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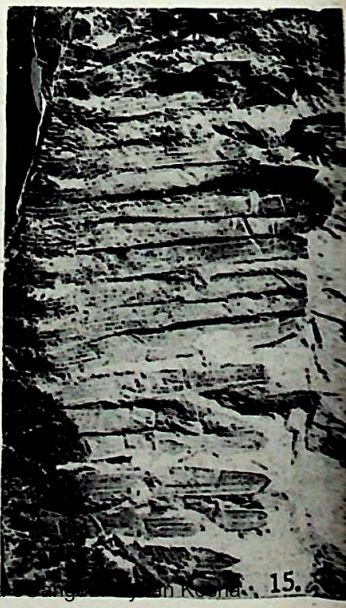
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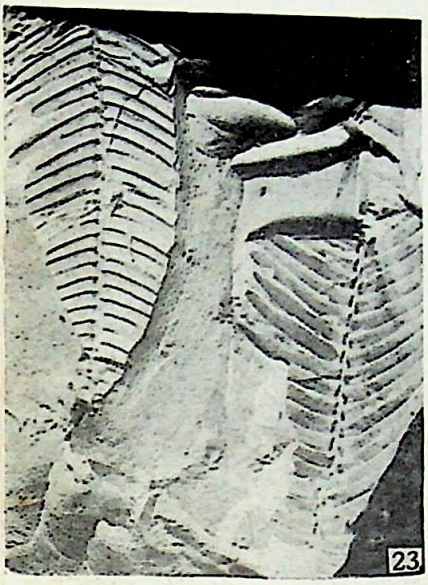

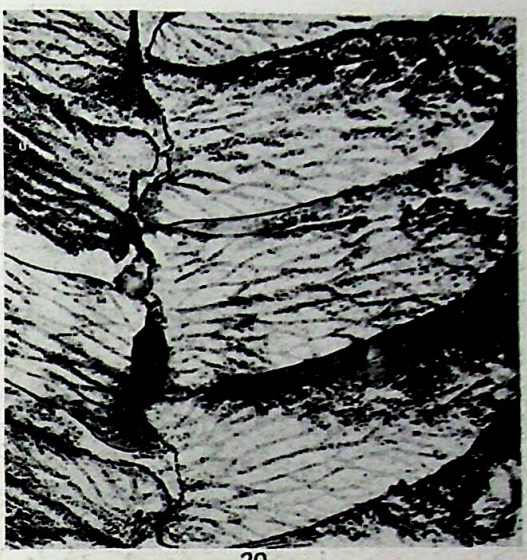

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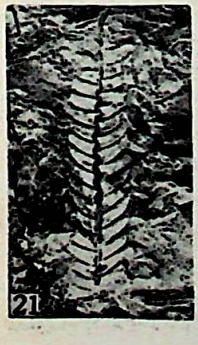

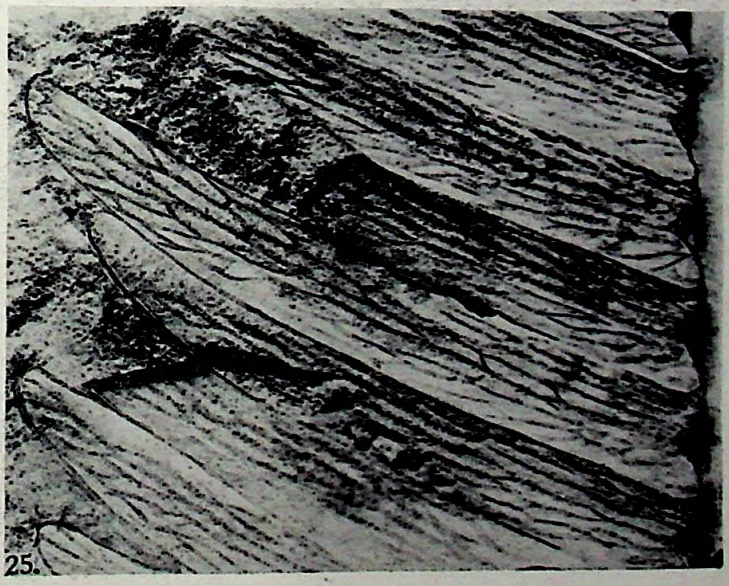

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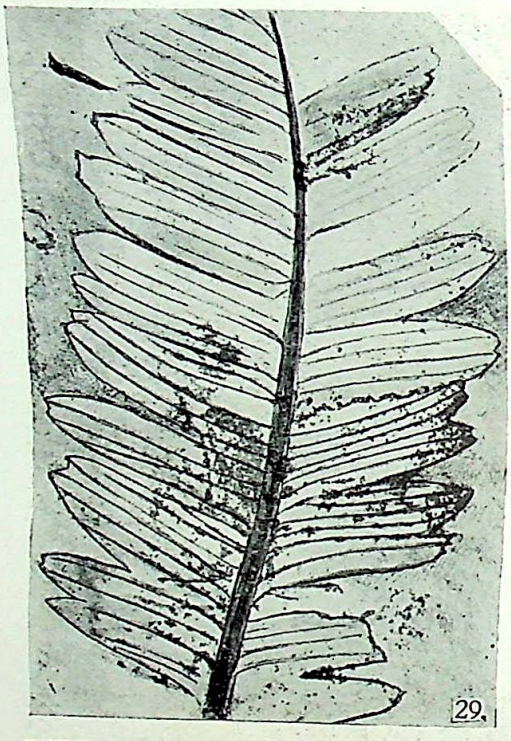
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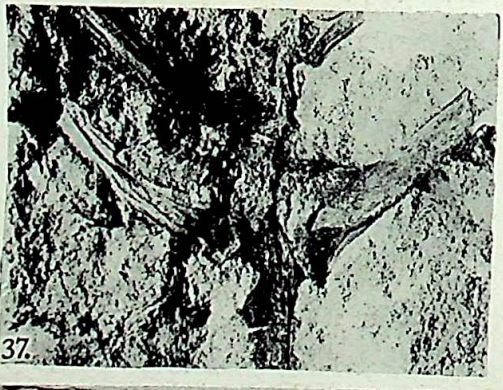
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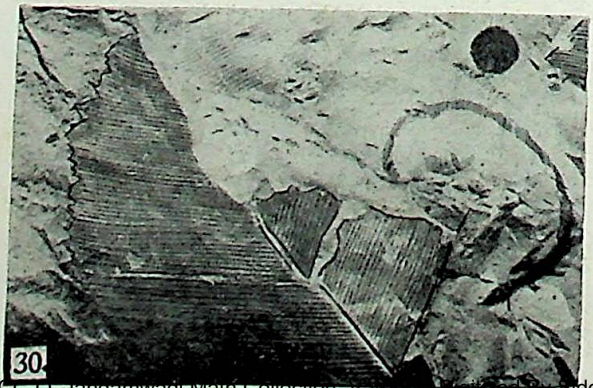
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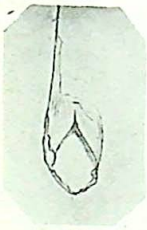

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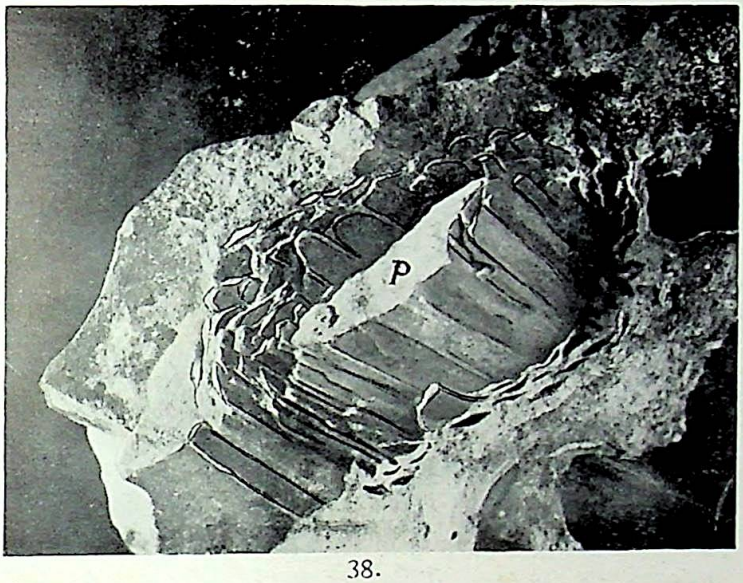

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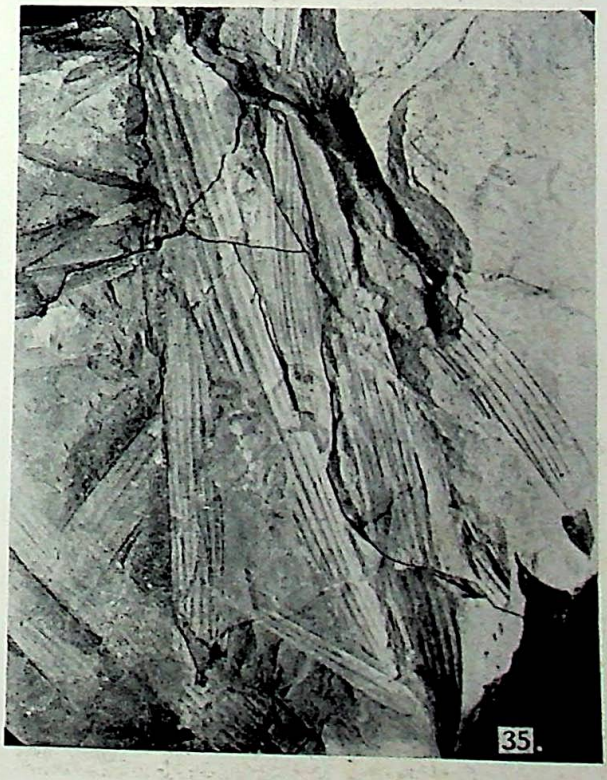

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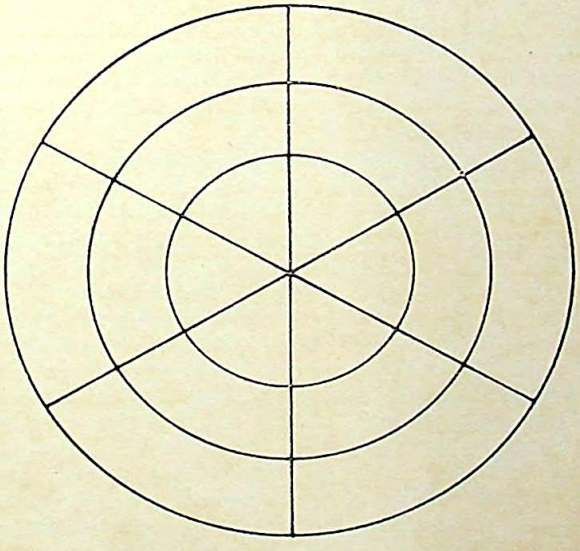
On a Type of Sedentary Game known as *Pretoa*.

By H. C. Das-Gupta.

The type of sedentary game that is being described in this short communication was first seen being played at Sealdah by some railway coolies belonging to the district of Chapra. The diagram used for the game consists of three concentric circles devided into six parts by three diameters, as is shown in the figure given below. Two persons are necessary for playing this game, nine cross-points on three contiguous radii belonging to each of them. Pieces of some hard and distinctive object are placed on each of these points and



the game is started. In the first move a piece is shifted to the centre and then the usual rule of capture by jumping over the piece of the adversary, if the cross-point immediately next to it is vacant, is followed, quite irrespective of whether the pieces are on the diameter or on the circumference, for the pieces may be moved not only on the radii or the diameters but also along the arcs or the circumference.

The game is apparently a Bihar game and may be compared with a game known as *gol-ekuish* that is prevalent

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in the Central Provinces and has been previously described by me,[1] the only difference being in the number of the concentric circle of which there are seven in the case of the Central Provinces game. A comparison of the two games also indicates that the Central Provinces game may have been derived from the Bihar game by increasing the length of the diameters and adding a few more concentric circles, the derivation being apparently through some intermediate stages which have not as yet been found.

I must confess that I am not sure if I ascertained the name of the game accurately. At first I was told that the name of the game was *shuia*, a term which I could not get explained by any one. On further enquiry, it transpired that the name was *pretoa*, the term having reference to the circular movement of the pieces used in playing, a type of movement which is attributed to the ghosts or *pretas*.

[*Editor's Note.*—We have to record, to our very great regret, the death of the Author on the 1st of January, 1933. Professor Das-Gupta was by profession a Geologist, but for many years he had been collecting samples of 'sedentary games' from various parts of India most of which he described in papers published in this *Journal*. The following is a list of Prof. Das-Gupta's previous publications on this subject in our *Journal*. —J.v.M.].

(1) Notes on a type of sedentary game prevalent in many parts of India. Vol. XIX, (1923), p. 71.
(2) A few types of sedentary games prevalent in the Central Provinces. Vol. XX, (1924), p. 165.
(3) A few types of sedentary games prevalent in the Punjab. Vol. XXII, (1926), p. 143.
(4) A few types of Indian sedentary games, Vol. XXII, (1926), p. 211.
(5) Two types of sedentary games prevalent in British Garhwal. Vol. XXIII, (1927), p. 297.
(6) On a type of sedentary game prevalent in Shahpur, the Punjab. Vol. XXVI, (1930), p. 411.

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[1] *Journ. Asiat. Soc. Bengal*, N.S., Vol. XX, p. 167, 1925.

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A Note on the Sedentary Game known as *Pretoa*.

By Sunder Lal Hora.

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In the preceding article the late Professor H. C. Das-Gupta has given an account of a sedentary game under the name *Pretoa*, but in concluding the note he has expressed doubts as to the accuracy of the name used. While correcting the proofs of Prof. Das-Gupta's article, it seemed to me desirable to collect further information about the game so as to complete the account. Quite a number of the durwans, chaprasis, and farashes employed in the Indian Museum come from Chapra and the adjoining districts of Bihar, so I sent for some of them and made enquiries about the game. One of the farashes was even sent to Sealdah to collect further information from the railway coolies whom Prof. Das-Gupta had seen playing the game. The result of all this investigation lasting over a week is given below.

The game is known under several names in Bihar, and in each name reference is made to some feature of the game. In the district of Ballia, which is to the west of Chapra, it is usually called *Pretoa*, but is also known as *Supa-beni*. In both the names reference is made to the movement of the pieces which may be moved along the diameters as well as along the arcs of the three concentric circles. Prof. Das-Gupta has already explained the etimology of *Pretoa* (from *Pretas* or ghosts); while *Supa-beni* is the vernacular name of swallow, a bird which in its flights circles round and round as well as darts straight forwards. In the district of Arrah the game is known as *Chakwa-boh* and *Nao-gutiya*. *Chakwa-boh* is the vernacular name used for a kind of diving bird, probably the Indian little Grebe—*Podiceps ruficollis capensis* (Salvaclori), which, when alarmed, dives under water and re-appears at unexpected points, so that there is no limit to the direction of its movements. In this name, therefore, reference is made to the type of movement of the pieces in this game. *Nao-gutiya* means a game which is played with nine pieces belonging to each person. This is a general designation which applies to several types of sedentary games played with nine pieces.

It may be remarked that most of the indigenous sedentary games are gradually being replaced by games of cards, etc. In making enquiries about *Pretoa* I have formed an impression that the younger generation has very vague ideas about these

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games. For example, I was told that this game is called *Bagha-guti*, which in reality is quite distinct, though that is also played with nine pieces. I was also informed that sometimes this game is played with 12 pieces (*Bara-gutiya*) and in that case there are four instead of three concentric circles. This will lend further support to Prof. Das-Gupta's view that *Gol-ekuish*[1] of the Central Provinces is only a variation of *Pretoa*. There would seem to be no difference in the nature of play, whatever the number of concentric circles; more circles will naturally mean more pieces to play with, and consequently more time needed to finish the game. Probably the nature of the intermediate types depends upon the amount of leisure hours to be spent.

I have incidentally collected two superstitious beliefs associated with this game. If young boys indulge too much in playing this game, the elderly people warn them that there will be a heavy downpour and consequently a deluge. The second belief is that if this game is played too much, then the cereals will become dear and consequently there will be famine. I have no doubt that both of these beliefs are meant to dissuade young boys from spending too much time on these games instead of attending to their regular work of cultivation. I am further informed that this particular game (as is also the case with other types of sedentary games) is usually played during the rainy season when the agriculturists have more leisure from the care of their crops.

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[1] *Journ. Asiat. Soc. Bengal*, N.S., Vol. XX, p. 167, 1925.

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The Social and Religious Ceremonies of the Chākmās.

By P. C. Basu.

(Communicated by Dr. B. S. Guha.)

The interesting tribe, known as the Chākmās, that live in the hilly districts of Chittagong and Tipperah, have attracted considerable attention from the surrounding Bengalee people by reason of many peculiar features in their manners and customs. They are undoubtedly a branch of the Mongolian family and have migrated to their present habitat from Arakan. Owing to close contact with the Bengali-speaking people of the plains they have considerably changed their native language and now speak a mixed form of speech. Signs of disintegration of their original culture are not absent in their social institutions but fortunately the latter in the main still retain their original character. The existing materials regarding the customs of this people are not extensive but the writings of Capt. T. H. Lewin, Émil Reibeck, R. H. Sneyd Hutchinson, Sir Herbert Risley and the praiseworthy attempt of Mr. S. C. Ghose and others give us a fairly good general knowledge. In the present paper I have attempted a detailed analysis of the existing data with a view to finding out the basic forms in which the institutions may ultimately be classified and also to indicate the lines along which further investigations in the field appeared to me to be necessary.

But before doing so it would not be unprofitable to write a few words regarding the general appearance and mode of life of this people.

Appearance.

The Chākmās are of short to medium stature, stoutly built with well-developed muscles of the calf of the leg due probably to the hilly nature of the country in which they are living. The hair is often straight, the face flat with prominent zygomatic arches. The head form varies from mesocephaly to brachycephaly and the nose from mesorrhiny to platyrrhiny. The complexion is yellowish brown, the eyes oblique, the body hair scanty, and the moustache rare. The average Cephalic index obtained by Sir Herbert Risley[1] is 84·3 and the average Orbitonasal index is 106·4.

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[1] Risley, Sir H.—The Peoples of India, pp. 384-5, Calcutta, 1915.

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The Houses.

They live in thatched cottages built on bamboo poles. The floor is of split bamboo and is raised some six feet above the ground. The rooms are divided according to their use, e.g. the bedroom, the store-room, etc., in front of which lies the thatched verandah. Access to the house is by means of bamboo steps or footholds cut in the trunk of a tree which is placed either in the front or back and can be removed at night. Below the platform, shelters are made for pigs and fowls. Besides this, watch-houses from which the crops can be watched during cultivation are built on the highest spot in the fields.

Occupation, Food, and Drink.

The Chākmā women are always found to be engaged in some form of cottage industry and almost every woman is more or less acquainted with the art of *weaving cloth*. Dyeing is generally done by indigenous methods. In the technique of *basket-making* they show a surprising excellence. Cane work is only rarely found, bamboo forming the bulk of the materials used. *Boat-making* is also one of their principal occupations. They hollow out the trunk of a tree for their simple canoes, but are not acquainted with the art of making composite canoes which perhaps are not so useful for their hill streams.

Their most important occupations, as in the case of the Tipras and Maghs, is *jhum* cultivation, although nowadays some of them have adopted the plough cultivation. At first (January to February) a suitable forest area is selected; in March they begin to cut down the trees, leaving only the large ones. Then in April they set fire to it. The logs are afterwards removed and after the rains they make equidistant holes in the ground with the billhook and put all sorts of seeds mixed together in them. The shoots come out and weeding is done from time to time.[1] A large number of ceremonies follow during cultivation and the crops are collected when ripe.

The Chākmās from boyhood are expert *hunters* and in *fishing* they use nets, fishing baskets, hooks, etc.

Their food consists of rice, pulses, vegetables, fruits, tamarind, eggs, salt, milk, etc. They eat meat of all kinds including some frogs, snakes, pigs, goats, and tiger, but not the flesh of dogs, cows, or elephants. Chewing of betel leaves and smoking of tobacco are their favourite habits.

Drinking of a kind of rice-beer is very common amongst the Chākmās. It is one of the most important accompaniment of almost every festive occasion. Every house usually prepares its own drink.

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[1] Imperial Gazetteer of India, Vol. X, p. 321, Oxford, 1908.

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Formerly they used to cook in bamboo pots and carry water in gourd vessels. They did not know the use of ceramics but as a result of contact with the plains people they are now learning to use pottery.

Tribal and Social Organizations.

There are three subtribes among the Chākmās, namely, *Chākmā*, *Doingnak*, and *Tungjangya*.[1] Of these Doingnaks are thought to have broken off from the parent stem more than a century ago owing to a matrimonial quarrel. Outsiders who are often attached to Chākmā girls are sometimes admitted into the fold of Chākmā society. They have to spend a week in the house of the priest after which a festival takes place in which offerings, prayers, and various sacrifices are made. Their children pass as Chākmās in every respect.

They are divided into a large number of exogamous clans (*gosthis*). The *gosthi* is distinctly hereditary and membership is transmitted only through the male line. The woman changes her *gosthi* by marriage. In addition to the clans there is a territorial grouping known as the *gochha*. A *gochha* may include persons of various clans or *gosthis*. When a person leaves his own *gochha* and resides in another, he is named according to the other *gochha*, but the *gosthi* is not changed. Marriage within the same *gochha* is allowed.

As in the Tibetan and the Himalayan Limbus the name of the *gosthi* depends upon the peculiarities and achievements of the ancestors. Whether there was present in ancient times the so-called Dual Organization, we have no direct evidence. Data regarding this point at present are unfortunately lacking and the subject requires, therefore, careful field investigation before a definite answer can be given. But so far as we can trace, it seems that the entire tribe was divided into four *gosthis* or clans—*Dhurja*, *Kurja*, *Dhabana*, and *Piḍā Vanga* (the ancestors of which broke a wooden seat).[2]

Whatever may have been the conditions in the past, at the present time there are a large number of *gosthis* each of which consists of several families.

Decision of Disputes.

Disputes are first settled by the headman, then by the king, and finally by the superintendent. If mutual arbitration is not possible then a vessel filled with about one seer of rice is placed

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1 Risley, H. H.—The Tribes and Castes of Bengal, Vol. I, p. 169, Calcutta, 1891.

2 Ghose, S. C.—Chākmā jāti, p. 55; 1316, B.S.

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in front of the holy image of Buddha. Next morning the suspected accused is given that rice to chew. It is thought that if he is really guilty, he will not be able to chew that rice and would vomit blood. The guilty party, thus found out, is to be punished heavily [1] (a modification of this practice is found at present among the lower classes in the other districts of Bengal).

Ceremonies connected with Birth and Childhood.

During pregnancy the Chākmā woman may take any food she fancies. A ceremony known as the *Gangsala* (River house) ceremony is performed both before and after the delivery. In this a small hut is erected by the riverside. A betel-nut is placed inside a vessel, the mouth of the vessel being covered with a piece of cloth. A thread is coiled seven times round the neck of the vessel, one end of which is kept inside the house and the vessel is carried to the riverside hut only after some preliminary ceremonies. Then comes the worship, and sacrifices are offered. After their return the vessel is placed in a safe place and a pig is sacrificed.[2]

As soon as the child is born the father brings a basketful of dry earth, puts it close to the mother's bed and kindles on it fire, which is not allowed to be extinguished for five days. After this the earth is thrown away.[3] Usually the mother goes to bathe in a neighbouring river on the next day after delivery, holding a rope of cloth in hand, one end of which is lighted for fear of the evil spirits. During this period of ceremonial pollution the parents refrain from any household work and are strictly forbidden to take part in religious affairs. The midwife also observes these restrictions till the umbilical chord of the child falls off. When a child is born before marriage, recourse must be had to a special room for delivery, built for the purpose.

Great enthusiasm is expressed whenever a son is born. Feasts, amusements, etc., mark the occasion.

They have no special name-giving ceremony. Only the aged address the child by some nickname, sometimes the child is addressed by the name of the place, or of some mythical hero. Later when the child grows up a good name is suggested. The children suck the mother's breast for a considerable period. There is no special ceremony for the first putting of rice into the child's mouth.

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[1] Capt. T. H. Lewin—The Hill Tracts of Chittagong and the Dwellers therein, p. 75, Calcutta, 1869.

[2] Ghose, S. C.—Chākmā jāti, p. 229; 1316, B.S.

[3] Hutchinson-Sneyd, R. H.—Eastern Bengal and Assam District Gazetteers: Chittagong Hill Tracts, p. 27, Allahabad, 1909.

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The Piercing of the Ears.

The piercing of the ears usually takes place in the sixth or the seventh year. There is no special ceremony for this occasion. Generally a single aperture for each ear is made in the males and a large number of apertures for each ear in the females. The piercing is usually performed with a thorn.

Initiation.

The initiation ceremony is usually performed by the *Bhikshu* or *Sramana*. Generally it takes place on the days of full-moon in the months of *Chaitra*, *Baisakh*, *Āshaḍ*, *Aswin*, or *Magh*. When the child is about 8 or 9 years old, the head is shaved, and he is dressed with a sacred piece of cloth and sits facing west with a pitcher, a lamp, and a quantity of rice, etc., placed in front of him. Some seven turns of thread are passed round them and he promises to live according to the regulations necessary for the occasion. Then he bows down, pays the usual fees, and becomes a *Sramana*. Usually the vow is given up after some seven days but when it is continued throughout life the individual becomes *Raḍi* at first and then *Thakur*. No woman is admitted to this initiation ceremony.

Adolescence.

When a boy approaches puberty, he cuts the *jhum* himself and the ceremony is enjoyed by the relatives with plenty of amusements.

Bachelor's Dormitories.

Among the Chākmās there exist the institutions of dormitories for unmarried youths. The bachelors live in these dormitories under the supervision of a leader. The data available are not clear regarding the existence of such dormitories for unmarried girls. Further investigations regarding this as well as the rules and regulations of these dormitories are called for.

Ceremonies connected with Marriage.

I have already mentioned that the clan is strictly exogamous, although slight violations have taken place in some cases. I have also pointed out that marriage is allowed within the same *gochha*. Marriage is prohibited with 'step-mother, mother's sister, sister, sister's daughter, mother's brother's daughter, father's sister's daughter, wife's elder sister. After his wife's death a man may marry her younger sister'.[1] At present

[1] Risley, H. H.—Tribes and Castes of Bengal, Vol. I, p. 170, Calcutta, 1891.

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cross-cousin marriage is fairly common and the divorcee or the widow is free to marry her former husband's brother. Polygamy is present but polyandry absent. Marriage usually takes place in the male between 20 to 40 years of age and in the girls between 15 to 20. Child marriage is unknown.

The different forms of marriage are :—

(1) Marriage at the bridegroom's place.
(2) Marriage at the bride's place.
(3) *Baḍa Bibaha* or the marriage of the rich.
(4) *Ghar-Jamai* marriage.
(5) Marriage by mutual consent.
(6) Widow remarriage and marriage of divorced women.

Of these the first and the fifth are usually prevalent, the third only occurs with the rich and the second and the fourth are looked upon with contempt.

The Proposal.

In the usual forms of marriage the guardian of the bridegroom visits the house of the intended bride taking with him some presents, e.g. beer, betel-leaf, betel-nut, sweets, etc., and the proposal is at first made by him with much reserve. The consent of the bridegroom is also taken in an indirect manner. Both while going as well as coming much attention is paid to the omens. If they meet persons carrying milk, fruits, fowl, or water on the right side, then these are considered to be good signs, whereas the presence of kites or vultures or the croaking of a crow on the left hand side, are all regarded as bad omens. If a corpse is met on the road, then it is considered to be a very bad sign and all negotiations stop at once.[1] No proposal of marriage is made between the full-moon day of the month of *Āshaḍ* to the full-moon day of the month of *Aswin*.

The Arrangement.

Similar visits are made two or three times. In the third time a woman accompanies the party. This time the details, e.g. the bride-price (usually 60 tolas of silver ornaments and a hundred rupees in cash), the particular form of marriage that is going to take place and the date of marriage (the favourite time being after the harvest) are all settled. As the appointed date comes near, the bridegroom's party asks the bride's party whether they will prepare beer for the marriage or not. No bride-price is paid nowadays among the advanced section.

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[1] Lewin, Capt. T. H.—Wild Races of South-Eastern India, p. 176, London, 1870.

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The Ceremony.

On the day previous to the marriage, come the musicians, from the musical note of which the aged determine the future of the couple. Besides this the women of the bridegroom's house throw two packets of betel-leaves and betel-nuts into the stream and observe whether they run together or stray away from one another. The former is regarded as a good sign and the latter as a bad one. After this one woman brings a pitcher full of water with which the pair are bathed prior to the marriage. If the marriage takes place at the bride's residence, then this part of the ceremony is performed there.

The guardians and the relatives of the bridegroom go to the bride's house, accompanied by a party of musicians and an unmarried girl of their own clan and taking presents, clothes, and jewelleries. The bride's father receives the party and the girl is carried inside. The bride is then decorated with these ornaments and dresses.

Next morning, after some auspicious ceremonies, the bride's parents part with their daughter. But as the pair go away, the ladder is blocked by seven rows of thread which is torn asunder by the bride's mother. This indicates that all her previous connections are now broken. When the pair leave the house the parents of the bride also follow them. As they arrive at the groom's residence they are received with proper ceremonies.

At night the couple are well dressed and are taken to the marriage pulpit, where the bride sits on the left side of the groom. Then a female and a male relative sit behind them and ask permission that the pair may be tied together. The answer is always given in the affirmative and they are then tied with a piece of white cloth. After this they touch each other's mouth with a mixture containing rice, boiled egg, plantain, etc. And in doing so the bride puts her right arm round the neck of the groom and the groom his left arm round the neck of the bride. The male and the female relatives assist them in this act. Then the aged bless the pair and pour water on their heads. After this as soon as the cloth is loosened both the bride and the bridegroom rise up suddenly. And in doing so if the bride rises first then it is considered that she is sure to win her husband's love. They then retire and pass the night separately.

Early the next morning both the bride and the bridegroom accompany the *ojha* to the bank of the river. There they wash their heads with a special mixture prepared for the occasion and return home before others rise from their beds.

After they have partaken of a meal, the pair receives blessings and presents from the superiors.

On the second or the third day after marriage the pair return to the bride's house with some beer, cakes, etc., and thus break the so-called matrimonial pollution. This is very

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important, for if they do not perform this they will not be allowed to step on others' platforms. They have also to visit the bride's house on the last day of the month of *Chaitra*. During the first year after marriage the pair never separate from one another.

In the second form of marriage all the ceremonies take place in the bride's house instead of being held in the bridegroom's house. Besides this there is no fundamental difference. In this case no breaking of marriage pollution is necessary. This suggests a metrical type of social organization. Unfortunately there are no data in the existing literature giving information on this point. Enquiry into this matter is of importance for if there are traces of matriarchy the Chākmā society would show a blending of more than one culture. Over perhaps a matriarchal substratum there may have been superimposed an intrusive patriarchal social form: and if an opinion can be hazarded the latter would appear to be the Chākmā type and the former that of earlier inhabitants, having an extensive distribution in the hills of North-Eastern Frontier. In the absence of more detailed information however it is unsafe to be positive but the view advanced here seems to be an extremely plausible one when we take into consideration the culture of this entire group.

The third form or the *Baḍa Bibaha* also resembles the first with the difference that in this case three houses are constructed, in one of which rests the bridegroom's party and in the other the bride's party. In the third house the pair hear the religious texts (*Sigalmogultara*) from the *Thakur*. The hearing of this text was formerly required even in ordinary marriage, but that is now given up. In this case also the pair have to break the ceremonial pollution.[1]

The fourth form of marriage resembles the second in most respects. Only the poor practise it.

In the marriage by mutual consent the pair usually run away from their houses. The girl's father, when he discovers this, reports it to the village headman and usually the parents of the youth and of the maiden come to a compromise—the latter being usually satisfied with some money and presents.[2] If the girl is carried away without her consent then the bridegroom has to pay a fine of about Rs. 60. But if the parents do not agree to their union, they then run away four times, after which there is no hindrance to their union and the bridegroom has not to pay the bride-price. In this case only the *Chungulang* ceremony is performed.

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1 Ghose, S. C.—Chākmā jāti, p. 226; 1316, B.S.

2 Lewin, Capt. T. H.—Wild Races of South-Eastern India, p. 179, London, 1870.

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The marriage of widows or of divorced women is not associated with much festivity, only a few villagers are invited to the feast.

The Position of Women.

The position of women is certainly not low. There is much liberty for unmarried girls who mix freely with the youths. They are not restricted from going to the village markets and can freely join in the *Mahamuni* and such other festivals. Although their liberty after marriage is more limited yet it is not absolutely checked, for they are the friends of men in all their activities.

Customs connected with Death.

After death the corpse is bathed and dressed with a piece of new cloth and is then placed on a bamboo bier. The villagers and the relatives of the deceased spend the whole night with the beating of a drum (*Dhul*). Then on some suitable day, specially in the afternoon, the corpse is carried to the burning ghat. It is not taken out on Wednesday and in some cases on Friday. Before the corpse is taken out one end of seven strings of thread is tied to the little toe of the corpse and the other end to the little toe of a fowl. The relatives of the dead catch hold of the fowl. Then an old man of the village cuts the thread asunder indicating that the link between the living and the dead is broken.

In the case of the rich persons the bier is placed on a chariot and it is pulled from two opposite directions[1]—one side representing Heaven and the other, Hell. But it is almost always so arranged that those towards Heaven win.

Burning is the usual mode of disposal. If the dead person is a male, then the body is placed on five layers of wood, with the head directed towards the east, but in the case of a woman it is placed on seven layers of wood with the head directed towards the west (cf. the Maghs also use more wood for the females). The eldest son, failing whom the nearest relative, walks round the pyre seven times and finally sets fire to the mouth of the corpse. After this the persons present kindle the fire from various directions. Generally with the corpse is burnt a bamboo pole with the idea that it might be of some help to him in the after-world. When the burning is complete the mourners take their bath and return home.

Children whose teeth have not erupted are buried—but they can also be burnt after touching cowrie to their mouth. Persons who have died of Smallpox, Cholera, etc., are first buried, then they are unearthed some two or three months later, when they are properly burnt. If a woman dies in pregnancy,

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[1] Lewin, Capt. T. H.—Wild Races of South-Eastern India, p. 185, London, 1870.

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the uterus is slit open by the husband and the fœtus is taken out. Then the mother is burnt and the fœtus buried.

When a person dies under the supposed influence of a spirit, then the body is divided below the chest when half burnt, for otherwise they think that he would become alive and cause great mischief.

Floating of the Bones.

Next morning some half-burnt bones of the dead are collected, the rest being thrown into water. They are placed inside an earthen vessel and its mouth closed. One member descends into water and ties a piece of string to his little finger. The other end of the string is pulled by a senior member of the same clan. When the vessel sinks, he immerses himself in the water and pushes it. The priests are fed on this occasion and presents are offered to them.

The Srādha.

This is performed either on the seventh day after death or on the seventh day after cremation, when various gifts are offered to please the spirits of the dead.

The Offering of Pinda.

The offering of Pinda is restricted only to the members of the same *gosthi*. In the cremation ground two small spaces are enclosed by bamboo fencing, for the spirits of the deceased male and female members of the family. On the previous morning the spirits are invited, when some of the members present faint. The person who has fainted is addressed in the names of various ancestors, in the course of which he regains consciousness. The descendants of that ancestor then become very eager to satisfy his desires.

Next morning the priest reads various texts, and the members of the family place various offerings which are dedicated to the spirits by the priests.

If an insect chances to fall on the offering then the ancestor is thought to have been born as an insect and it is considered that the insect would die and its soul would be emancipated as soon as the *Pinda* is offered to the spirit. As on the previous morning, some person may even faint at that time. If so, then he is treated with considerable respect as being possessed by one of their ancestors.

Religion and Magic.

The Chākmā religion is a heterogeneous blend of the Brahmanic and the Buddhistic elements grafted on an

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Animistic foundation. They have an extraordinary dread of evil spirits, which should never be displeased, otherwise evils are sure to follow. Magical superstitions are found in large numbers. The *ojha* or the medicine man is the most important personality in dealing with all these elements, while the *Raḍi* and the *Thakurs* deal mainly with the Buddhistic rites. Besides this a large number of gods and goddesses appear as their deities. Some preside over the *jhum*, some over the forests, others over various diseases, and so on. They are all worshipped so as to appease their wrath. The Chākmās also worship *Siva*, *Durga*, *Kāli*, *Laksmi*, *Saraswati* and other Brahmanic deities. The Vaishnavic influence has penetrated quite recently and it is not uncommon to find some individuals wearing a necklace of tulsi beads (*Ocymum sanctum*) round the neck.

Of the various religious practices the *Chungalang* forms one of the main elements, specially in the marriage ceremony. For without it the marriage becomes imperfect. It consists of a number of divinations, as in the falling of leaves, in the configuration of the parts of animals, etc. This practice is possibly borrowed from the Maghs. For they also worship their household deity *Chummungh* during the marriage and the birth ceremonies and the building of a new house.

Of the Buddhistic elements we find the *Bishu* ceremony which takes place on the last two days of the month of *Chaitra*, when everybody dresses well. Each takes a fan in hand and passes through the streets in a charming procession. Afterwards they place the offerings and a lighted candle at the feet of Lord Buddha. On the next day the ceremonies of erecting *Thamitong* (i.e. Rice-hill—possibly of Burmese origin) and the *Tanganotsarga* (hoisting of the standard) are performed. Besides this, the full-moon days of the months of *Ashaḍ*, *Sraban*, *Bhadra*, *Aswin*, and *Magh* are held sacred, when feasts are given to the *Raḍis;* they listen to the Sastras and offer gifts to various persons. The *Chakrabuha* is another Buddhistic festival.

Of the Brahmanic elements we find the worship of *Siva*, *Laksmi*, *Kalaia* (a variant of *Kāli Puja*), *Navagraha Puja* (the worship of nine planets), and *Nabanna* festival (i.e. the ceremony of new rice—usually held in the month of *Kartik* when the crop is already ripe. On this occasion *Ma Laksmi* is worshipped and goats and pigs are sacrificed).

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The Social and Religious Institutions of the Kharias.

By B. K. CHATTERJEE.

(*Communicated by Dr. B. S. Guha.*)

The Mayurbhunj State in Orissa is inhabited by a number of primitive tribes whose appearance, manners, customs, and mode of living are interesting subjects for investigation. One of the most primitive and backward of these tribes is perhaps the Kharias.

In their simplest mode of life they represent one of the earliest stages of culture. They are still in the fruit-gathering stage. They do not practise agriculture. Their household utensils consist of a few earthenware pots. The men wear a loin cloth which is hand-spun and loom-woven by the people of that locality, while the women use a short cloth. They live under very low huts which are made up of short bamboo poles or *Sal* wood about 4-5 ft. in length and are covered with leaves; as the height of the huts is very low, they have to crawl at the time of entering them.

MARRIAGE.

I give below a detailed description of the marriage customs and ceremonies of the Kharias in the Mayurbhunj State, which I had an opportunity of investigating during a short visit paid in 1928. The marriage customs and ceremonies of these people are much simpler than those of other primitive neighbours.

There is no prohibition of marriage based on social status. A Kharia boy may marry a girl of higher status and *vice versa*. There is also no prohibition based on geographical barrier and a Kharia may marry an inhabitant of a village twenty or thirty miles distant from his own. This is often done on account of their scattered manner of living. The marriage of a Kharia boy with his mother's sister's daughter or his mother's brother's daughter is allowed. But in spite of my best efforts it could not be ascertained whether the marriage of a Kharia boy with his father's sister's daughter or father's brother's daughter is allowed in their society, as the system is not very prevalent. The marriage settlement is arranged by the father or by any other guardian of the boy. With the help of his village friends, he searches for a bride, selects her and fixes up all the preliminaries with the girl's guardians. Love-marriages are very rare. In such a case, the boy with the consent of the girl takes her away with him and marries her afterwards. When a

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marriage is fixed, the bridegroom's party pay the bride's father the price of the bride in the form of money. Before the bridegroom sets out for the bride's house to marry, the groom's father worships the Fire-Deity by sacrificing a goat before it. Unless this is done the groom's party would not take any food at the bridegroom's house.

Marriage Ceremony.

During the actual marriage ceremony the bride sits on the left of the bridegroom. Two rings of *Kusha Grass* are placed on the middle fingers of each of them. Their palms are then joined and placed over an earthen jar. Mango leaves are kept in another jar which also contains water. The water from that jar is poured over the joined hands of the bridegroom and the bride. The above is conducted by the priest. Then a cloth is spread before them and both are made to crawl under it. They then sit down on the ground facing eastward and the priest makes a knot with the end of the cloths worn by the groom and the bride. Two empty dishes are placed in front of them and one places food on the other dish. The priest then unties the knot and gets his dues. Up to this point the ceremony is conducted at night: afterwards in the morning the priest again ties a knot and tells them to play '*Kada Kali*', i.e. the groom hides a jar in the mud and it is the duty of the bride to find it. Similarly, the bride hides a jar in the mud which the bridegroom finds. After *Kada Kali* is finished, the bride anoints the groom's head with oil and then the groom flies. The bride chases him and catches him with the help of others. This concludes the marriage ceremony and the bridegroom then takes the bride home.

Cases of adultery and kidnapping of a married woman are treated rather lightly. In such cases, the husband only demands the 'bride's price' and the matter is dropped when he gets it. A man may have more than one wife, but generally circumstances do not permit them to have more than one. Divorce is allowed. It is complete when the husband gets the wife's price and after divorce the wife may marry again, not in the usual form of marriage but in what is known as the *Sanga* form of marriage.

Sanga form of marriage.—In a *Sanga* form of marriage, the usual ceremonies are not gone through, but a Kharia simply takes a woman as his companion and mistress and lives with her.

Religion.

The Kharias do not worship numerous deities as in the case of their neighbours, but have only four, viz.: (1) Agnipat (Fire-deity); (2) Barapahar (Big Mountain); (3) Pachima Bir; and (4) Narsing Bir.

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Besides these, they perform *Baram Puja*, which is nothing but ghost worship.

Agnipat.—The worship of the *Agnipat* deity is celebrated at the time of a marriage ceremony. The bridegroom's father worships the deity before the groom's party sets out for the bride's village and the groom's party would not partake of any food until the worship is performed.

The groom's father, and in the case of his absence any other male guardian, worships the deity by simply sacrificing a goat.

Barapahar.—The worship of this deity is celebrated on the last day of month of *Paush* corresponding to the English month December-January. Only those persons are allowed to worship it who are acquainted with the *Mantras*. The requisites are a goat, sweets, vermillion, sun-baked rice, and incense and resin.

Pachima Bir.—The worship of this deity is also celebrated on the last day of the month of *Paush* and is conducted mainly with vermillion which is taken on the left palm and, putting the hands behind the back, four dots are made with the vermilion in a straight line on the ground.

Narsing Bir.—Narsing Bir is also worshipped on the last day of the month of *Paush*.

Baram Puja.—Baram Puja is performed on the day of full moon in the month of *Magh* corresponding to the English month January-February.

This is performed by the hereditary priest on behalf of the family. The following articles are required for this Puja:—

Goat, fowl, vermilion, *Methi*, and flowers.

Magico-Religious Belief.

The Kharias believe that the whole of the Universe is full of spirits and whenever they are attacked with any disease they attribute it to some of these ; so sincerely do they believe this that no arguments can win them from their firm conviction ; on the other hand, they will try their best to convince and convert others to their own belief and they will argue with as much conviction as if they can actually see and show the spirit at that moment.

In the course of my enquiries, when I was putting some questions about these spirits, an old man exclaimed that they could show me if I would accompany them to a certain place. To this I agreed, but after a few steps they refused in a body to accompany me at that time because it was then mid-day and the spirits living on the top of the banian tree would be angry and would do great harm to them in the evening and much to my astonishment and disappointment they left the place. According to these people, there are two kinds of spirits, male and female, with different names such as Kudar, Baram, and Bisalakhi and Kudar-Baubisalakhi.

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Spirits propitiated.—Whenever any person is attacked with any disease, they send for the village medicine man, who at once comes to the house of that person and places a few drops of oil on a *Sal* leaf. If that oil sticks on all sides they will take it for granted that some malignant spirit must have caused the illness and so that spirit must be appeased.

They have some fixed day and fixed time and, last but not least, a fixed place for propitiating these spirits. They have also different kinds of *mantras* and different procedures for different spirits.

This ceremony is performed in the early morning of Sunday, Monday or Friday at the junction of four roads. The medicine man draws a figure, representing the spirit, and offers sun-baked rice besmeared with the blood of a black fowl, or when a black fowl cannot be secured the medicine man substitutes his own blood, and says 'Oh spirit! we have not been able to offer you what you want, so please be satisfied with what we have offered and depart'.

Female spirits called *Bisalakhi* are supposed always to wear white cloth and live at the top of a tree, and if any person by chance goes under it on Saturday or Sunday at noon they are supposed to do him harm. These spirits eat fish after stealing it from their huts and annoy children. When any one is attacked by these ghosts that person must be fed with sweetmeats.

Funeral.

Generally, they bury their dead bodies but if a person dies of cholera or smallpox they throw the dead body away in a forest. If, however, anybody dies of snake-bite, they bury the dead body. When a woman dies during the period of gestation or at the time of delivery they cut open the womb of the woman, take out the child and then bury the mother and the child side by side. After death the whole family remains impure for ten days. The father, mother, uncle (both paternal and maternal), daughter, unmarried sister and son-in-law of the deceased observe this. On the tenth day the members of the deceased's family, consisting of the father, mother, and their unmarried children shave their heads and then go to a pond or river to bathe. After bathing, they all come before an effigy made of clay; on the left side of the effigy is placed a vessel full of water, near it there are some leaves of *Tulsi* plant. They all drink a little water from this vessel and then return to their huts. Afterwards, they entertain the guests at a feast and the rites concerned with the dead are regarded as over.

Occupation.

Male members work in the field as day-labourers or cut wood from the forest and burn it for charcoal, which they bring

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to their huts and use for the purpose of roasting their food. Women collect roots and fruits from the forest and do other household work, such as cooking. They look after the children, and the boys and girls help their fathers in the field and graze the cows.

Inheritance.

Generally, adoption is not allowed but they can bring a boy into their house who will be brought up as their own son. The boy will retain the clan-name (*gotra*) of his putative father and will succeed to some of the property of his so-called adoptive father. No ceremony is performed at the time of adopting that boy.

Addendum.

I am indebted to Dr. S. L. Hora of the Zoological Survey of India for having directed my attention to a note on the 'Marriage Ceremonies of the Kharias' by Rev. L. Cardon of Ranchi (*Journ. As. Soc. Bengal*, LXXII, pt. iii, pp. 29, 30, 1903) in which the following facts are of interest:—

(1) The marriage takes place at the home of the bridegroom and not at the bride's house.

(2) The imposition of a fine on the bride in the event of her touching or being seen at the time of combing her hairs or dressing by the bridegroom's elder brothers or cousins.

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Wild Men in Assam.

By J. H. HUTTON.

The traditions of wild men current in the Naga Hills at any rate may be roughly classified under five heads—(1) little people —pixies, so to speak, generally unseen but often audible and occasionally caught; (2) ogres of cannibalistic tendencies; (3) lycanthropists, men who turn into lions, leopards or tigers as the case may be; (4) Amazons, who are wild men in genus if not in gender, and (5) monstrous races.

To take them in order, the little people seem to a certain extent to have the attributes of earth spirits, if they are not actually confused with them. Men frequently hear them calling in the jungles, but they do not see them. The Sema Naga word for an earth spirit (as distinct from a sky spirit) is *teghāmi* which would appear by derivation to be simply "jungle men." The Angami Naga word is *terhoma*, and though it appears to have no connection with the word for "jungle" in ordinary use, there is an obsolete word *terha* which has that meaning. There is a very concrete conception of these earth spirits, and it was once reported to the writer that the trans-frontier village of Tobu had caught one in a snare, killed it, and thrown away the body. It is possible that it was a slow loris[1] which is a very rare animal occasionally found in the hills and regarded with grave superstition. However, all tribes have traditions of jungle men who have been caught and kept, eventually becoming the ancestor of existing clans such as the Lezechunoma sept in the Angami village of Kohima, whose ancestor was found in a hollow tree and belonged to "the wood-cutting generation," or the Lhota clans of Eni, Thangwe and others whose ancestors were caught in the jungle, or the descendants of the woman whom ancestors of the Phoms found in a cave. So too the Konyaks speak of the *Maiknak Nok*, a monkey-like race which inhabited the hills before their coming.[2] It seems to the writer not unlikely that these stories of little people, living in the jungle and sometimes caught and tamed, have a definite reference to a branch of the Negrito race which apparently actually did at one time occupy the areas now inhabited by the Naga tribes or at least areas which Naga tribes previously inhabited, and which has left a tangible physical impression on more than one tribe

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[1] *Nycticebus tardigradus* (Linn.).
[2] Peal, *Fading Histories*, *J.A.S.B.*, I, 1894.

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in the hills.[1] Hartland, it is true, condemns the view that tales of little people are based on previous contact with a dwarfish race.[2] He does so on the ground of the universality of the distribution of such stories, but there is a good deal to suggest that pre-historic contact with dwarfish races must have been hardly less widespread than the tales which are imputed to that contact. Negrillos in Africa, Negritos in Asia and Oceania, Eskimos in America, Lapps in Europe, not to mention the Bushmen of Africa whose art would seem to connect their past with the west European Peninsular, give a pretty wide range for dwarfish races. At any rate, if all stories of pixies are not founded on actual experience, that is no safe ground for saying that none are, and Assam looks as if she might provide a case in point.

To turn to Ogres. These are very near to the familiar *rakshasa* of Hindustan. *Rotsoma* the Angami call them and they carry off children and fatten them for food, and the Kachha Naga tell of two brothers who overheard their cannibal captors discussing the fate in store for them, and who escaped after great adventures. How far these ogres are confused with a cannibalistic variety of sky spirits I am not sure, but the Ao, Chang and other Nagas have stories of spirits living in the heavens and keeping mithun[3] which are really the souls of men so that when they kill a mithun a man dies. The daughters of these spirits have been known to marry mortals and live on human flesh, going to visit their parents in the sky to get mithun meat which their husbands discover in the form of human limbs hidden under leaves and so forth. It may be mentioned that the Maori, of New Zealand have some exceedingly similar traditions, and in the Polynesian after world of Po the souls of the dead are "eaten" by the gods.[4] Here perhaps we have the obverse of the tradition of the little people. It has been suggested that the latter represent the survival in tradition of a conquered race, driven out or exterminated for the most part but surviving in individuals captured and enslaved by the invader. The Ogre is perhaps the opposite, a characterization of a conquering race by a conquered. One has only to think of the innumerable cases in which intruding white men have been accused by native races of eating human babes, quite inaccurately, at any rate within the writer's experience. After all the ogre is not too outrageous a caricature of *Homo sapiens*. Up to the date of the British occupation Sylhet was known throughout Bengal as a prolific source of kidnapped boys for castration and employment as eunuchs. Even after the British occupation of

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[1] *V. Man in India*, VII, iv, Dec. 1927, *a Negrito Substratum in the Population of Assam.*

[2] *Science of Fairy-Tales*, Ch. XII.

[3] *Bos frontalis.*

[4] Moss, *Life after Death in Oceania*, p. 80.

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Sylhet itself, persons were abducted for sacrifice at Jaintiapur, and the threat of sale to the Jaintiapuris is said to be still used by Sylheti mothers to frighten their children into good behaviour.

It is, however, perhaps not necessary to go far afield for a source of belief in mere cannibalism. Two Muslim travellers of the 10th Century even report that human flesh was sold in the markets in China.[1] In the Naga Hills tradition always puts the village of the cannibals a little further east than the furthest village with which the relaters trade, it is not impossible that cannibalism was actually practised in Assam. Both head-hunting and human sacrifice arise from a theory of the soul as the source of all life, existing as a quasi-material entity within the body which it pervades, and transferable to other bodies indirectly through the soil and the crops, the circuit of life being continued by the consumption of the crop by human beings. This theory is stated in a very definite form by the Karens of Burma,[2] who claim the Angami Nagas as their kindred[3] and are claimed as kin by the Angamis who say they left a branch of their race in the plains of Burma and speak of this branch as Kerenoma. Now throughout the Indian Archipelago, head-hunting, human sacrifice and cannibalism appear as manifestations of the same principle, some tribes practising one and some another, so that a head-hunting culture in one island is replaced in another by a culture otherwise similar but in which head-hunting is absent and human sacrifice, or cannibalism present. Obviously the speediest way of transferring the life giving soul-matter from one body to another is for the second to consume the first and so obviate the tedious necessity of awaiting the harvest to obtain the elixir which would have to be shared in that case with all the other consumers of the crops, if not with all the direct and indirect products of the soil. Accordingly we find traces of an attempt to effect the absorbtion of soul matter by means of cannibalism, actual or ceremonial. Hose and McDougall report a case in which a girl was killed and a bit of her flesh fed to her sick brother in order to effect his recovery.[4] Clearly a case in point. Since therefore a theory which may give rise to cannibalism is held in Assam, the practice also may have existed there likewise. Another belief, which may give rise to cannibalism, is that in the transfer of the qualities of that which is eaten to the eater, a practice held by some to be responsible for cannibalism among some tribes of South America. This belief is also well

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1 Translated by Renaudot, *v. Pinkerton's Voyages*, Asia I, p. 200.
2 Marshall, *The Karen People of Burma*, p. 222.
3 Smeaton, *The Loyal Karens*, p. 68.
4 Hose and McDougall, *Pagan Tribes of Borneo*.

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known in Assam, where the Naga refuses to eat the white-headed fork-tail for fear he should become prematurely bald and denies goat flesh to his women-folk for fear it should make them libidinous. However that may be, we find Glanius relating the adventures of a XVIIth century traveller to Assam, who accuses the hill tribes of eating the bodies of their dead relatives,[1] and this is still reported of the Lobas, a Himalayan tribe reputed to inhabit the mountains behind the Abors.[2] In the Angami sacrifice of the *Lisu* ceremony, a bovine victim is invested with a cloth and a spear, the attributes of humanity, surely, and torn to pieces and devoured.[3] The Lushei warrior used to lick from his spear-blade the blood of his first victim,[4] a custom, by the way, also practised in Melanesia.[5] Finally we have the case of a British Officer, killed at Khonoma in 1879, whose flesh was undoubtedly tasted by some of the young warriors of that village.

As for tiger-men, it is perhaps not fair to class the genuine lycanthropist with wild men, though it may be noted that Semas derive their name for them from a root meaning to wander in the jungle. There is, however, a widespread belief in the Naga Hills in a mysterious village further east where the inhabitants are lycanthropists, tiger-men according to Nagas, lion-men according to Kukis, and as this village is nearly always associated in tradition with cannibals, and with Amazons, the belief in it cannot rightly be ignored when dealing with wild men in this area, particularly as this association goes back to Herodotus who adds head-hunters to make a fourth.[6] Here again it is possible to ascribe the belief to the result of contact between races. Tribes containing tiger clans are found among the Kacharis and Chang Nagas for instance, survivals perhaps of some extinct totemistic belief which might easily be misinterpreted by strangers. Lycanthropy, too, seems to be associated with particular tribes, as distinct from their neighbours. The Sema practise it, their Angami neighbours do not, though they share in the belief in it. So too the Garo are frequently lycanthropists, but the Khasi, though acquainted with the belief, deny that it is a Khasi practice. The belief in tiger-men may therefore be merely the result of a contact by untigerish tribes with tiger clans or with actual lycanthropists. For this lycanthropic habit appears to be something more than mere vain imaginings. It is probably based on a pathological

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1 *Naufrage d'un vaisseau Hollandois*, p. 73.
2 Duff-Sutherland-Dunbar, *Abors & Galongs*, p. 5, M.A.S.B., vol. V.
3 *Vide Carved Monoliths at Dimapur, etc.*, J.R.A.I., vol. LII, p. 69.
4 Lewin, *Wild races of South East India*, p. 269.
5 Codrington, *The Melanesians*, p. 305. *cf.* also Herodotus IV. 64 and Leitner, *Dardistān, 1886-1893*, pp. 14, 53, 61.
6 *Melpomene*, 102 sqq.

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condition, and in races akin to the Malay is no doubt propagated by the disease of suggestibility to which that race is subject. Skeat records the case of a man caught naked in a tiger trap and describes the behaviour of small boys hypnotized into believing themselves to be civet cats.[1] One hesitates to ascribe too much reality to what seems a fantastic belief, but many lycanthropic occurrences in the Naga Hills are too circumstantial to be dismissed as mere delusion and one is almost tempted to impute to certain individuals a telepathic sympathy with leopards in the jungle, for in Assam it is leopards as a rule, which are involved in these practices, and the lycanthropist does not change his shape but merely establishes a sympathy with a leopard in the jungle so intimate that the lycanthropist knows when and where the leopard kills and if the leopard be killed the lycanthropist dies—when he hears of the killing. That some sort of fellowship with wild animals may not be impossible is perhaps suggested by the stories so frequently appearing of children brought up by wolves[2]. Such cases involving tigers are more than doubtful, but the *Englishman* reported, on November 18th, 1921, a case of a child suckled by a lioness in South Africa. There are no wolves in Assam, so lycanthropy there is associated with leopards, and probably the best authenticated story of a child suckled by a wild animal of them all is the case of a boy suckled by a leopard in the North Cachar Hills reported by the naturalist Stuart Baker in an article on "*The power of scent in wild animals*" in the Bombay Natural History Society's Journal[3] in July 1920.

Wild women, as already mentioned, are associated with cannibals, head-hunters, and lycanthropists by Herodotus, but the Naga,[4] though placing their village to the east of the Naga Hills, and next to those of the cannibals and of the tiger-men, will allow the occupants to have no relations with them, and ascribes to his Amazons methods of reproducing their kind which are not a little fanciful.[5] Some say that they are impregnated by the suckling of hornets at their breasts; we must, no doubt, reject such fantasies, but we must again beware of treating the whole as pure romance. Tales of

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[1] *Malay Magic*, pp. 160 sq, 436, 455. The curious may refer to the article on lycanthropy in the latest (1929) edition of the *Encyclopædia Britannica*.

[2] e.g. the Midnapur case, reported in the *Statesman* of November 13th and 17th, 1926, and the Allahabad case reported in the *Englishman* of April 7th and 8th, 1927.

[3] Vol XXVII, p. 118.

[4] Vide *The Angami Nagas*, p. 263, and *Folk Lore*, XXXIV, 234.

[5] So the Chinese tell of a country inhabited exclusively by women who conceive by sleeping where the south wind blows on them (Fielde, *A Corner of Cathay*, p. 136.)

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Amazons elsewhere have probably grown out of true reports of such institutions as Chandragupta's [1] or, better authenticated, Ranjit Singh's, [2] or the king of Dahomey's female *Corps de Garde*, but in the Naga Hills the martial aspect of the Amazon legend is absent, and the origin is probably to be found in the actual existence of a village or villages devoid of males, a phenomenon in itself quite contrary enough to ordinary experience to give rise to any sort of fable when repeated to those who have not been in contact with the cold and probably commonplace fact. The Gazetteer of Upper Burma and the Shan States [3] actually reports two such villages as existing in the Upper Chindwin Valley, and therefore not too far from the Naga Hills. They are very small villages, but there may have been others,[4] and anyhow man is born to exaggeration as the sparks fly upward, so that even if a village had very few men in it, it would lose even those that it had in the noising abroad of its fame.

When we come to monstrous races it is always not so easy to find a foundation in actual fact. Some varieties are easy enough, but anatomical anomalies like the single-footed people who lie on their back and shade themselves from the sun with their sole are a little difficult to supply with a pedigree, and even more so, if possible, are the ingenious Chinese who grow with a nicely chamfered hole in the middles of their chests for the carrying of them skewered on the handy bamboo.[5] Nor is it easy to see a tradition of the pineal eye in the cyclopean ogre of the Kachins, who possesses one orb in the centre of his forehead.[6] Stories of this sort are very ancient. Pliny, Strabo, and Pomponius Mela [7] seem to have got their versions from Megasthenes. Mandeville [8] seems to have borrowed from them in turn. Peter Heylin [9] mentions them

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[1] Strabo, XV, p. 709, 710.

[2] Rothery, *The Amazons*, p. 74.

[3] Pt. II, Vol. ii, p. 201.

[4] Palladius, Bishop of Hellenopolis, reports in his *De Gentibus Indiae* a village of Brahmans where the men lived on one side of the Ganges and the women on the other, and the men crossed over to visit the women for 40 days in the year only, and no man returned after his wife had born a child (quoted by Yule on *Marco Polo*, III, xxxi, and by Rothery, *op. cit.*) Hiuen Tsang gives a similar account of the "Kingdom of Western Women" in an island south of Fo-lin (*i.e.*, Constantinople ?), where, as in the Angami version, they rear no male children (Beal, *Buddhist Records of the Western World*, II, 279.)

[5] Fielde, *loc. cit.*

[6] Hanson, *The Kachins*, p. 157. Strabo describes them too—ἐν μέσῳ δὲ τῷ μετώπῳ τὸν ὀφθαλμὸν (XV, 711), and of course Mandeville (XXII). Both Strabo (II. 69) and the Kachins agree in making their toes turn backwards.

[7] *De Chorographia*, III, 56.

[8] Ch. XXII.

[9] *Cosmographie*, III, 'Of India.'

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all, and Purchas[1] writing of "Many doubtful and fabulous reports of the Indians" also quotes Pliny as to "Pigmeis" and "such as live only by sent" (*i.e.*, scent) etc, but dismisses them with a curt statement that he does not wish for the "admiration of fools." A laudable sentiment, but it is not uninteresting to track some of these marvels to their source. Let us start with Strabo. He mentions the Enotocoeti,[2] whose ears were so long that they hung down to the ankles and so large that they slept on one and used the other as a coverlet "and wild men (ἀγρίοι ἀνθρώποι) and other monsters" and goes on to tell us of specimens of a gentle mouthless race who were brought to the court of Chandra-Gupta—ἀστόμους δε τίνας ἀχθῆναι ἀνθρώπους ἡμέρους· οἰκεῖν δε περὶ τας πηγὰς του Γὰγγου· and that they dwell about the sources of the Ganges. He is drawing on Megasthenes, but Megasthenes cannot have seen them for himself and was probably repeating what he had heard in India. If we turn to Alberuni,[3] we find him mentioning not, it is true, the Enotocoeti,[4] but people with ears like sieves, not at all a bad description of the Lhota or Sema Nagas who bore two holes in the concha of the ear as well as others in the helix and the lobe, but one which might give a totally wrong impression in the matter of size. These he associates with the single-footed monstrosities so fascinating to Pliny and Co. and also with Pragjyotishya, Lohitya, Kasi and Mekala. Clearly Assam is indicated. Mekala is probably the 'Miklai' which has been used for both Manipur and for the Lhota Nagas. Pliny clinches the matter for he places some of his wild men in a certain valley of the Himalayas called "Abarimon."[5] Obviously he, or his source Megasthenes, has heard of the *Ābări manuh* of the Assamese and mistaken a people for a place, and *abări manuh* means literally "wild men" as opposed to tame ones—*bori*. It is, or was, used by the Assamese not only for the Abors but for any hillmen of the remoter ranges, and older books on Assam often allude to Nagas of the inner ranges as Abors. The interesting thing is to hear what these wild men themselves have to say about Strabo's and Pliny's monsters. We have already mentioned the Kachins; the Ao and the Angami tell us of the people whose ears are so large

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1 *His Pilgrimage*, V. i, § 3.

2 XV, 711 and II, 69. Mandeville, for a wonder, shortens the ears to the knee.

3 Vol. I, ch. xxix, p. 300, Trubner, 1914.

4 Though there is Sanskrit authority also for these as *Karnaprāvaramās* and McCrindle quotes *Mahabharata* II, 1170, 1875 in this connection (*Ancient India as described by Megasthenes*, note on Fragt. XXIX.)

5 He seems to be referring to the Lobas mentioned above—*Super alios autem anthropophagos Scythas, in quadam convalle magna Imaī montis, regio est, quae vocatur Abarimon, in qua silvestres vivunt homines, etc.*, Nat. Hist. VII, ii.

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that they sleep on one and cover themselves with the other;[1] the Sema of a tribe whose noses are upside down (like those of the Kachin *Chyăwoi* already referred to), so that when they walk out in the rain they must cover their nostrils with a plantain leaf or the blade of a dao, a tale also to be had, by the way, from the Bila-an of the Philippines; the Chang of a race of dwarfs who have no mouths and live by sniffing meat held to the nose,[2] as a natural corollary of which they had no vent in the anus, till a lewd fellow of a tribe of normal anatomy got among them and persuaded them to let him treat their children to make them as he was and thus destroyed them all with a hot iron, and escaped while their confiding parents awaited the promised recovery and transformation.

In these stories again we can trace the acorn of reality from which this oak of romance has grown. Large ears were formerly regarded by the people of south eastern Asia as a sign of beauty[3], and hence no doubt the practice of enlarging them with plugs and weighting them with numbers of rings so that they were sometimes long enough to reach to the breasts, a practice which extended from Formosa to the Garo Hills, where it is still followed[4], as also by Kukis, Tangkhuls and others. Hence no doubt an unkind jape at people whose ears were so big,[5] akin to that in the 'Thousand and One Nights' at the negro whose lips were so thick that the upper lip brushed the stars while the lower caused his feet to stumble. As for the inverted nose, we have seen Garos in Mymensingh so prognathous and so platyrrhine that their nostrils certainly opened forwards instead of downwards, if they did not actually slope upwards. It only needs a little twist to this to arrive at unfortunates who must cover them when they go out in the rain, and whose noses may therefore be said to be upside down. It is from this notion of inverted noses, perhaps, that we get first the noseless ones of Megasthenes[6] and then the mouthless ones. If a face is drawn

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[1] McCrindle (*loc. cit.*) mentions the account of a sepoy in the British service who had *seen* such people.

[2] So Pliny "*ad extremos fines Indiae ab oriente circa fontem Gangis, ...gentem sine ore,.....halitu tantum viventem et odore quem naribus trahant.*" (loc. cit.)

[3] *Les Siamois ont les oreilles un peu plus grandes que les nôtres, mais naturellement et sans artifice.....et plus ils les ont grandes, plus ils les estiment: goût commun à tout l'Orient* (La Loubère, *Rayaume de Siam*, I. 101). The Palaungs still regard large ears as a sign of goodness and wisdom. Milne, *Home of an Eastern Clan*, p. 28). *V.* also my note at p. 308 of Mills' *The Ao Nagas*.

[4] Playfair, *The Garos*, p. 29.

[5] Cf. Harcourt, *Voyage to Guiana* (Hakluyt Society. 1928), pp. 109, 174.

[6] *ἀμύκτηρες, ἀναπνοὰς ἔχοντες μόνον δυο ὑπὲρ τοῦ στόματος* (Strabo, XV. 711), though Pliny gives them only one breathing hole—("*naribus carens uno tantum foramine spirat* (*Nat. Hist.* VI. 30). The Rabbi

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with the nose really upside down the correct position of the mouth is not too easy to determine, and the other concomitants follow naturally down to the circumstantial observation of the Chang Nagas that the meat sniffed in this seemingly unsatisfactory way lost its goodness at once and had to be thrown away as rotten already

In conclusion then we may perhaps deduce the moral that generally speaking these stories of wild men are founded on experience, though not on the same experience, giving rise, no doubt, to generalized notions of wild men; that they bear witness to the inherent inability of mankind to observe accurately and report correctly wherever racial prejudice is involved, and that they testify to the unbounded capacity of *Homo sapiens* to inflate the unwonted into the marvellous and to believe the supremely incredible.

KOHIMA,
April, 1928.

Benjamin of Tudela, a Spanish Jew, who travelled in the XIIth century A.D., reports a tribe of men who "seem to want noses; but instead thereof, they have two holes in their faces through which they breathe" (Pilkington, *Travels in Asia*, I. 10). The learned translator remarks "it is not so very far wide of the truth; for modern travellers assure us that the Kalmuc Tartars have noses so flat that they are scarce to be distinguished but by the rising of the hostrils," so Megasthenes' noseless ones may be merely Mongolians after all.

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A Note on the 'Wild People' of the Santals.

By P. O. Bodding.

So far as I know, the Santals have no stories or recollections of having at any time had experience of beings of the kind referred to in the communications made in the Monthly Meetings of the Society on the 'Wild People' of Tibet by Mr. van Manen. They have, however, stories of fabulous beings in other parts of the world than where the Santals at present live, and also stories of anthropoid apes.

I mention the latter first. The Santals naturally know the common monkeys found in their country, the hanuman (by the Santals called *hãṛũ*) and several kinds of monkeys (by the Santals called *gãṛĩ*). They also have heard of some apes, reported tailless, living in Assam, called by them *olo*[1] or *olo baṇḍa*. Although they are fully alive to the intelligence of these beings, they have no doubt as to their being animals, only that they often show supposed human traits. They also believe, that these apes have a kind of organized society with social rules, and that apes who sin against these are outcasted from ape-society. I believe there is even now in Dumka living an old hanuman of whom the Santals have said that he had committed some social crime (in connection with ape-marriage) and had been driven away from the ape-society living on a hill some twenty miles to the west of the place.

Besides these they have a name of a being that they call *bir sindiċ*. The last word is likely Santali, the first one also. *Bir* in Santali means 'forest': it is, however, also used for a strong man, giant (in this meaning it is borrowed from Sanskrit *vira*). *Sindiċ* is not otherwise met with in Santali, so far as I know; *bir* is very frequently used as an adjective prefixed to other words, very much like with us 'forest' (often equivalent to 'wild'). I have never met a Santal who has seen a *bir sindiċ*; but I have heard Santals in the Zoo in Calcutta express an opinion that the Orang utans seen there likely were *bir sindiċ*. I have an impression that the Santals at the back of their minds have a vague kind of idea, that the *bir sindiċ* they have heard of possibly are a little more than an ape, something 'anthropoid.' They are reported to make for themselves tiny mud huts in which they live.

I have heard the following story: Some forty years ago it happened in a tea garden inside the Santal Colony in the

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[1] As a curiosity it may be mentioned that the Norwegian explorer, the late Mr. C. Lumholtz, tells that he in Borneo met a tribe called *Olo*.

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Goalpara district in Assam that three *bir sindiċ* came there ; the coolies gave chase, two of them managed to escape, but the third was caught, and she was a woman, as the narrator expressed himself. She was standing with head bowed down and hands kept up before her face, as one very much ashamed ; and when the people had their attention drawn away for a moment she managed to escape, and these *bir sindiċ* have not been seen since. The narrator had heard this, not seen the 'woman.'

What struck me when I heard this was that the Santal called her a woman, although I think he was clear in his mind that it was a kind of ape. When such a story passes from one mouth to another, it will receive small additions here and there, whilst something also may be deducted, and before very long a theory may be formed with such a story as proof of its truth. H. C. Andersen's story of the feather that became five hens is in accordance with nature.

The Santals have stories about strange peoples and beings, not that they have ever seen them themselves, but they have heard of them. They tell that to the east people live who are naked, and who eat their parents when they die, saying : they carried us in their bodies when we were born, now we shall do the same for them ! These stories possibly refer to the Nagas, possibly (according to Santal explanations) to people living towards Tibet.

They further tell that in these regions (their ideas are hazy, but one would think they referred to places bordering on Tibet) the *ekaguṛiạ* and *ghọṛ mũhã̀* live. These beings have only one leg and a mouth like that of a horse. They eat human beings. It is not more than some forty years ago, that it was commonly told and believed by ignorant Santals that people who engaged Santals to take them to work on tea gardens in Assam really took them away to sell them to these *ekaguṛiạ* who paid a basketful of money for each. The *ekaguṛiạ* country is said to be very foggy.

Even Strabo had heard of similar beings nearly two thousand years ago.

The present day Santals have transferred the abode of these beings to the magic-filled east. Otherwise there are stories stating that the ancestors of the Santals have been living in the same country with them, as the tale says, here in this country, but this last remark has to be referred to the place where the story first started.

I give here one story as I have received it from a Santal, in translation ; in an Appendix a similar one is reproduced.

In olden times, it is told, before the Santals came to this country, the *ekaguḍiạ* (this is only a parallel form of the name) were living here. The Asurs were smelting iron, and these were smelting silver ore and were eating people. They smelted silver ore and cast rupees. People say that they were able to

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run exceedingly rapidly on their one leg. In spite of all the Santals were not afraid of them, but fought with them. To get money, it is told, they were in the habit of selling people to them. They caught a person and took him to a lair they had agreed on. Here they kept a drum. When they had caught and brought some one they tied him, bent up with his hands on his back, so he could not get loose and run away. Thereupon they beat the drum and came away. Now the *ekaguḍia* came with money which they put down near the drum, whereupon they carried the person away. A moment afterwards the others came back and took the money. But when the *ekaguḍia*, it is told, reached their place, they felled the person with a hammer blow. When this was done they boiled clarefied butter in a large pan; when it was on the boil, they put the body in and boiled it thoroughly. When ready they hung the body in the door, and every time they went out or came in they took a bite and continued in this way, until they had finished him.

After some time the people commenced to beat the drum falsely; for where could you every day find the needed bait? The *ekaguḍia* came with the money and looked for the man, but there was no one there. Naturally they became angry and commenced to lie in wait, and when the people came and beat the drum they pursued them and caught them. People tell, if you ran along a road or a path, they would catch you in no time; therefore when an *ekaguḍia* was after you, you should run to lowlying boggy land, or to where there are high ridges. If you only could jump over the ridges, you were safe. The *ekaguḍia* has, as you remember, only one leg; if he tumbles down he is unable to get up quickly, and you get away in the meanwhile. When this happened two or three times the *ekaguḍia* got tired of it and gave it up. Later on, it is told, the Santals became more plucky, and when they saw the *ekaguḍia* come running, they met them with bow and arrow, and when they had in this way killed three or four of them, they became afraid and ran away. Now-a-days they are not to be seen, whether they have been exterminated, or whether they live in some other country, is not known.

Like stories of a similar kind, I suppose the one here related must have some connection with fact; but what this may be it is not possible to say. There is no silver to be found in these parts, or where the ancestors of the Santals have been for centuries. No Santal would think of selling a human being to be eaten, and there would be no market! Might there possibly be a reminiscence here of the ancestors of the present people having been in connection with, or having heard of, the head-hunting peoples in parts of Assam or neighbouring countries?

How a small matter may be the origin of a long yarn the following story may show. I shall first reproduce the story as told and then make some remarks on it; it runs as follows:—

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People tell, that in olden times when the primeval forest existed the Asurs were living here. They were much stronger than the Santals, in other respects they were looking like Santals. They had no form of cultivation; they were smelting 'orestone'; from this iron was melted out, and this iron they were in the habit of eating whilst it was hot; this was what they were living on. Then when we Santal human beings came down here from the up-country (*i.e.* from the west), the Asurs said among themselves: Hallo, what kind of human beings are these coming here? Then somebody told them and said: These human beings who are coming are stronger even than you. You are able to eat only hot iron; but these people eat both kinds; they eat what is hot and they also eat what is cold; they eat rather more of what is cold. When they heard this, they said: Well, then let us also try to eat what is cold and see whether we can manage this or not. Then, to tell the truth, when they had heard this, they took cold iron and bit it; but however much they tried, they were unable to manage. Consequently they became very much afraid and said: We shall never be able to hold our own against these people. Now we Santals eat hot rice and cold rice, and the man who told them the story did not trouble to explain to them that he referred to rice, and then they naturally became frightened, and as soon as they heard the sound of the Santals coming they moved further on. People say, that the Asurs did not know how to build houses. Wherever they found a precipice or a slope they dug in and made a den and themselves lived in this.

The iron slag found in the jungle is a relic of them; here they smelted iron. When they died, people saw their bones: they look like wood and stone mixed up (this refers to a kind of limestone, by the Santals called *ạsur haḍ*, lit. Asur bone). These tremendously strong people were driven away, as told, by the help of spies; otherwise no mother's son would have been able to drive them off. This is what people tell, whether it is true or not; I have not seen them myself, the narrator added.

As is known, there is a tribe called the Asurs, now-a-days speaking a Muṇḍa language, living in Chota Nagpur, not here in the Santal Parganas. They are reported to have been here (which, however, may be incorrect); there are small tanks found here and there, called *Ạsur pukhri*, Asur tanks, reported to be dug by the Asurs, and with large implements, as four kodalis full dug out were sufficient to make the tank. In many places is found iron slag, called *mẽṛhẽṭ iċ*, iron excrement, and also *kọlhẹ iċ*, Kolhe excrement (the Kolhe tribe have up to quite recently been smelting iron; I myself have seen them doing it), or *Ạsur iċ*, Asur excrement. Now in Santali *iċ* means rust, slag, dross, but also excrement, and this is the clue of the story.

What I have written is all meant to show, how small

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matters, observed and not understood, or used for the purpose of getting some fun out of them, may be at the bottom of strange stories in which a few dim and indistinct reminiscences may be mixed up. Once started they do not lose in interest, but become more and more vivid.

I have not touched on the superstitions and folktales current among the Santals having reference to *boṅga*, spirits, *cuṛin*, a kind of spirits with large heads, and feet reversed (as is said to be the case with many bongas), believed to be women who have died in childbirth (the *cuṛin* are reputed to suck the blood of human beings), and *bhut* which are very small and said to be children who have died before birth or before getting a name. All try to frighten people. There are many stories about these, their shape, their mode of living and their doings and powers, and how people have seen and been living with these. Some parallels to statements found in certain of the stories related in connection with Tibet might perhaps be traced in these Santal stories, but they would scarcely give much help to explain the Tibetan stories. It would lead us too far to enter into details here.

I should also mention, that whilst the Santals consider that a *bir sindiċ* corresponds to the Bengali *ban manush*, there is a small Munda tribe called, also by the Santals, *bir hoṛ*, lit. forest man, *hoṛ*, being the Santal name for a human being and for a Santal. They are very few in this district and have a rather curious reputation. Among other matters, they eat monkeys. The Santal traditions tell that the *bir hoṛ* some time long ago were outcasted from the ancestors of the Santals and related tribes (Kharwar, as they, according to these traditions, called themselves), because they had killed and eaten the hanuman monkey. Incidentally one might ask, might not some of the stories of races eating human flesh have their origin in the eating of monkeys ?

Several possible origins of these stories have been pointed out; all of them seem to be possible. The stories may really refer to animals (apes or bears) or to people. Outlaws are naturally quite possible, or people who have retired from the world. Without laying any stress on it there is one of these possibilities of which I should like to say just a little.

We have living in India, also on the borders of Tibet, many different tribes; they have very little in common and may be so different that strange ideas and tales are developed in connection with some of them. Things are seen, but not plainly enough to be understood, and so a story is started. *E.g.*, the Santals tell of the Mahratta raiders of some generations ago, that they had tremendous ears; at night they slept on one and covered themselves with the other!

That tribes with criminal tendencies live in mountains and from their resorts periodically come down to steal and plunder,

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is not unknown. We have had examples of such gangs even here in this district with its not very high hills. What whole tribes may practise individuals may also do.

One further remark may find a place here. There is in Norway a very rich folklore with stories of what are called "Troll," giants, ogres, or whatever may be the equivalent in English. They correspond somewhat to the Indian rakshasas; they are giants and eat people when they come across them. Attempts have been made to explain these "troll" as natural phenomena, indistinctly seen, and mostly seen in fear and superstition, the imagination having given them shape and all the rest. I remember how, some years ago, I saw a painting with Professor Moltke Moe (he was our great authority on folklore whilst living); this picture showed some peculiarly formed roots and other natural objects on a lake-shore in a peculiar evening light. When looking at it from a distance, it was exactly like a giant, somewhat misshapen and horrible looking, but just what such a being might be imagined to be. Possibly some explanations are to be found along similar lines out here also, personified natural phenomena.

Another suggestion as to possible origins of similar traditions is one brought forward in connection with the Hanuman of the Ramayana. It has been suggested that Hanuman and his tribe represent the aboriginal peoples.

While, as noted, animals may be taken to be human beings, and natural objects, or misunderstood and unrecognized natural phenomena may be taken to be supernatural beings of one kind or another, it seems that we have also to reckon with the same process reversed. Human beings are counted as animals.

Sir Herbert Risley in the Introductory Essay to his work The Castes and Tribes of Bengal at the very beginning refers to a stone panel found at Sanchi, depicting 'a strange religious ceremony. Under trees with conventional foliage and fruits, three women attired in tight clothing without skirts, kneel in prayer before a small shrine or altar. In the foreground, the leader of a procession of monkeys bears in both hands a bowl of liquid and stoops to offer it at the shrine. His solemn countenance and the grotesquely adoring gestures of his comrades seem intended to express reverence and humility. In the background four stately figures—two men and two women—of tall stature and regular features, clothed in flowing robes and wearing most elaborate turbans, look on with folded hands and apparent approval at this remarkable act of worship.' The panel is seen reproduced on the outside of the volumes of the work referred to.

Sir H. H. R. is of opinion that the monkeys are intended to represent the aboriginal races of India, and he refers also to 'the story in the Ramayana of the army of apes who assisted Rama in the invasion of Ceylon.' 'It (the picture described)

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shows us the higher race on friendly terms with the lower, but keenly conscious of the essential difference of type and not taking part in the ceremony at which they appear as patronizing spectators.'

To support this theory the following may be mentioned :—

It was (I am glad to be able to say that one now seldom hears such expressions) very common to hear the Santal aboriginals called apes, hanumans, by the Aryan inhabitants, and it was not a term of endearment, nor of respect. The hanuman is likely more honoured than those called so.

The Traditions of the Santals as handed down from *guru* to *cela* apparently have a reminiscence of the happenings that the Ramayana poetically describes. In the form of the traditions taken down by the late Mr. Skrefsrud from the dictation of a *guru*, named Kolean, the following lines (translated) occur: 'The ancestors have told, that in olden times when Ram raja lived all the Kharwars (the traditions say that before these peoples were split up into a number of tribes, now called Santals, Muṇdas, Hos, etc., they were one people and called Kharwar) went with him (Ram) to Lanka (Ceylon) and helped him to subdue Rabon raja, wherefore thenceforth for a very long time we had no fight or quarrel with the Hindus. They were living in the open country and we in the forests and in the hills.'

Another form of the traditions expressly denies that the ancestors went along with King Ram. This was told me by a *guru* many years ago.[1]

Taking the two forms of the tradition together it does not seem improbable that we have to do with a real reminiscence, and that part of the ancestors of the present-day Santals really accompanied King Ram on his expedition. It is not difficult to assume that some of the Kharwars were living not far from Ayodhya,[2] or in any case, not far from the route King Ram had to follow.

If it is a fact that the aboriginals, *in casu*, the Kharwars, materially assisted King Ram, this had to be acknowledged in a way. And a way extolling the aboriginals and at the same time keeping the distance was found. To some minds there is something of the supernatural in the doings of a hanuman.

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[1] Incidentally I may mention that I have a Santali account of the contents of the Ramayana; this is not, however, tradition, but without doubt a kind of résumé of what the Santals have heard at picture shows. Now and then wandering 'artists' find their way even to the Santal villages, show their pictures of the heroés and incidents of the Ramayana, and describe all the happenings. The Santal rendering is a miserable story with a good deal of grotesque matter and nothing of the beautiful periods of the original.

[2] Some of the Santal folk-tales even expressly state that what is told in the tale happened in Ayodhya.

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What the aboriginals did was more than human. The story of the monkey king in the Ramayana and the worshipping monkeys, on the Sanchi panel referred to, may be, and likely are, acknowledgments of something due to the aboriginals for assistance rendered. There is, however, a great difference. The Ramayana shows reverence and admiration; the panel picture shows superior toleration. It is unnecessary to follow this further.

The story of the Santal girl and the hanuman recorded in the Appendix is a strong corroboration of the theory advanced, provided the 'reading' is as proposed.

In response to an expressed wish three Santal folk-tales are recorded here below in an Appendix in the original Santali with a fairly literal translation and a few explanatory notes.

APPENDIX.

Santali Text.

Ghoṛmũhã reaṅ katha.

Noko ghoṛmũhã do miṭ lekan janwar kanako. Nokoaṅ moca do ṭhik sadomaṅ moca leka, se bohoṅ lutur joṭoge ṭhik sadomaṅ lekage, ar hoṛmo tikin do ṭhik hoṛ hoṛmo lekage, ar jaṅga do hoṛ jaṅga lekage, mẹnkhan miṭṭaṅ eskargetakoa. Ar daṛ do hoṛ khon hõ baṛtiko daṛ daṛeaka

Ado kathae, disom sendrare miṭṭaṅ koṛa miṭṭaṅ jele khudaukedea. Ado khudau khudaute, kathae uni jel do (onko ghoṛmũhã ṭakako dudul kan tahẽkana) ado ẹkkalte, kaṭhae, uni jel do onko ṭhengeye daṛ idikeṭ khan do, nui hõe khudau idikedegea, ar bae baḍae kana, noṭẹre do nonkan onkan janwar menaṅkoa mẹnte do. Ado andhage uni koṛa do onko ṭhene calao goṭena.

Khange onko do nuiko ṅẹlkede khanko saṗ goṭkedete ako ṭhenko idikedea joome laṣiṭ. Ar noko ghoṛmũhã do, kathae, hoṛ hõko joṃkogea. Ado kathae, nui koṛako idikede khan do, paḥil doko oṅkkedea dhũãte. Ado kathae, uni koṛa hoṛmo khon tejo ar kicriṅ se, kathae, bogeteko odokena.

Ado baṛsiṅ ṗẹ mãhãko onkakedea, ado onakateko mẹnkeṭa, Nit do goṭa hoṛmobon chaṭaokedea, adobon itil ocolege.

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Adǫ kathae, dinge sasañ suṛe dakako emaea. Arko ñir haparaoa arko mẹna, Tis abo khon baṛtiye daṛ daṛeaka, unre dǫbon jǫmea. Adǫ kathae, din hilok setakreko ñir haparaoa, ar ruaṛkate dǫ ṭakako dudula.

Ar onko lahateko sap̣ idi akaṭko dǫ, kathae, onako sanamko biḍạu puraukeṭko khan dǫ, miṭṭañ marañ utạr karako condaea, ar onare gǫtǫmko dula miṭ kara. Adǫ ona khubko tiñgi basaña, adǫ tǫl koṭeamkate jivẹṭtege ona sunumreko khadle hǫṭkoa. Ar bogeṭeko phanda baṛa gelaea. Adǫ bhala tǫl ḍhumbạkkako khan dǫ, cekateye phanda daṛeaka? Adǫ miṭ ghạṛiko kuṇḍel baṛa gelayenge, adǫko gǫċenge.

Ar nui koṛa dǫ tan man onako dǫe ñẹleṭkoa. Adǫ kathae, onka goṭategе isinkate duạrreko akakakoa, adǫ oḍokok bǫlǫk, kathae, mocateko pohak jǫmkoa. Adǫ sanam jeltẹṭ jǫm cabakate dǫko raṛa ārgokoa ar im ar bǫrǫ ar laċkoko oḍokte ona dǫ geṭ kuṭikateko suṛe dakaea sasañte arko jǫma. Ar ona bǫhǫk reañ hatañ oḍokkate ona dǫ piṭhạkateko jǫma.

Adǫ uni koṛa dǫ noako jǫtǫ kạmi tan mane ñẹlkeṭ khan dǫe bǫrǫyena, are mẹnkeṭa, Durrẹ! miṭ din dǫ hapẹn iñ hõ nonka lekako jǫmeña. Adǫ noako kathage mǫnẹ mǫnẹteye guni bhạbik kana. Adǫe mẹnkeṭa, Daṛelenre hõ noko khon dǫ bañ sǫrǫs hataṛoka. Adǫ daṛekate miṭ din dǫ ẹmǫn iñ daṛa sẹ; ẹkkalte apnar disomteñ daṛ utạra. Onkae bud ṭhikkeṭa.

Arhõ onakateye ñẹlkeṭkoa, bañma, akoren eṅga apa khubko haṛam buḍhiyena mẹnkhan dǫ saṛimteko capaṭ rakap̣ goṭkakoa; adǫ ǫṇḍẹ khon guḍrạu ñũrokteko ñũr gǫċenge. Adǫ jǫtǫ hǫṛko hǫhǫ jarwakateko metakoa, bañma, Aleak kohṇḍa dǫ bele ñũrente posakena.

Adǫko metaea, Posaken khan mabon jǫma.

Adǫ kathae, uni hõ onka leka gǫtǫm sunumre isinete ato sudhạren hǫṛteko jǫmea. Adǫ ona hõe ñẹlkeṭkoa.

Adǫ tahẹn tahẹnte uni koṛa dǫ, kathae, khub daṛeye ạikạukeṭa, ḍahar ḍaharteko daṛre hõe sǫrǫsena.

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Adǫko mẹnkeťa, Bạd khẹtrebon ńir haparaoa. Judi onare hõe sǫrǫslen khan dǫbon jǫmea.

Adǫ dosar hiloḱ dǫ bạd khẹt talateko dạreťa. Khange pạhil dǫ uni koṛageye sǫrǫs goťlena. Khangeye hudis goťkeťa, Durrẹ! sǫrǫslen khan nãhãḱko jǫmeńa. Adǫ onkae hudisḱeť khan dǫ, bại bại machategeye dạrḱeťte onkogeko sǫrǫs goťena. Adǫ uni koṛae mẹnkeťa, Teheń siń ar ńindạ cekateń tahẽ aṅgalen khan gapa dǫń dạṛgea. Jitạulenre mań dạṛkeťge, arko saṕliń khan mako jǫmeńge. Ạkhirge baṅ ạkhir nenkate hõń gujuḱge, enkate hõń gujuḱge. Jãhã lekategeye ińaḱ baca dǫ bạnuḱanaṅ. Mẹn iń dạṛ gelaegea.

Adǫ kathae, ẹn hiloḱ dǫ bako jǫmledea, jãhã lekateye tahẽ aṅgayengea. Adǫ kathae, bereť torae paṭhẽ kajak baṛa goťena. Adǫko metae kana, Ayo, teheń dǫ bejãe uriċem paṭhẹḱ kan dǫ!

Adǫe metaťkoa, Giṭiċte ḍeṅga bhagwa ḍhil akantińa, onateń sãohãyeťtińa.

Ar kathae, uni jǫme reaḱ hõ ẹn hiloḱgeko neṇda akawana, mẹn akawanako, Ńir haparao khon ruạṛ torage nui dǫbon jǫmea. Ar uni koṛa hõ ẹn hiloḱge dạṛ reaḱe mǫnẹ akawana. Adǫ kathae, jǫtǫ hǫṛ bereť baṛayenteko mẹnkeťa, Delabon, teheń do bạd khẹt piṇḍhạko cetantebon dạṛ idia. Ǫkǫe bhala bon sǫrǫs daṛeaḱa, teheńbon biḍạulenge.

Adǫ kathaeko calaoente miť then panteteko teṅgoyena nindara lekage. Adǫ jǫtǫ hǫṛ hẽ hũkate dạṛko ċhoṕ goťkeťa. Adǫ kathae, nui koṛa dǫ ċhoṕ torarege khub tạpise dạṛ goťkeťa, onko khone sǫrǫs goťente bạd piṇḍhạko parǫm torạge bạihạṛ piṇḍhạ sẹne mohṇḍa goťente oka sẹntege khub daṛaṅ daṛaṅ piṇḍhạ menaḱa, onkategeye mohṇḍạyente dạṛe dạṛkeťa sẹ, tiriť lekae dạṛkeťa. Piṇḍhạko hõe dǫn parǫm idikeťa, ar onko dǫ dǫn parǫm torako sǫmboť gur gǫdoḱ kana.

Inạḱtege, kathae, nui dǫ ạḍi saṅgiṅe dạṛkeťte nǫtẹ Hǫṛ disomteye ńir hẹċente onko ṭhen khon dǫe paskaoenteye baṅcaoena.

Adǫ kathae, uni koṛage onko ghǫṛmũhã̀ katha dǫ hǫṛ ṭhene lạikeťa, nonka onka kana mẹnte. Adǫ in

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khon Hoṛ hopon doko baḍae kana, nonka moca ar nonka hoṛmo ar nonkate hoṛko jometkoa mente.

Ado noa katha hõ eṇḍege mucaṭena.

TRANSLATION.

A Story of the Ghoṛmũhã.

These ghormuhas are a kind of animals. Their mouth is exactly like that of a horse, that is to say, their head and ears are all like that of a horse, and their body and hands are exactly like that of a human being; their feet are like the feet of a man, but they have only one leg.[1] As to running, they can also run quicker than a man.

People tell, it once happened that a young man at the annual hunt[2] chased a deer. As he was chasing it along, it so happened that the deer ran to where the ghormuhas were casting rupees,[3] and when the deer ran there the young man also followed it there, but he did not know that animals of this kind were to be found in that direction. So the young man went to them unawares.

When they saw him they at once caught him and took him to their place to eat him; for these ghormuhas, people tell, also eat human beings. Now when they had taken this young man to their place they first smoked[4] him, and, people tell, a great number of worms and lice came off the body of the young man.

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[1] In this story these beings are represented as having a horse's head; in other stories they are described as having simply the mouth of a horse. The name, which is borrowed from an Aryan language, may mean either 'horse-face' or 'horse-mouth'. It might be noted that this story expressly calls these beings 'animals', but the word should perhaps not be taken as meaning more than 'being'.

[2] The reference to the annual hunt may be a later introduction to explain the happenings to the listeners. The Santals have during the hot season every year a hunt where all males of the country-side are supposed to attend, hunting one day through a large forest or over a hill, meeting for the night at a previously fixed place and returning the next day hunting over the same ground in the opposite direction, after which they return home. This hunt formerly played a very large rôle in the life of the people, the night mentioned being spent in adjudicating quarrels and all social matters. Here all Santals were equal, an overchief having no more to say than a servant boy. This 'council of the burnt forest', as it is called, was presided over by a hunt-priest (*dihri* he is named; have the Santals got this from the Saurias in whose language a 'priest' is called the same?). The Santals look upon this council as their own 'High-court'; its importance has, however, dwindled very much during the later years, as is only natural with the law courts working.

[3] The Santals naturally have no idea how money is coined and take it that the coins are moulded.

[4] It might be remarked that this story was taken down long before the last war and the fumigation of Russian prisoners by the Germans. One wonders where they got this item. The nearest approach to it that the

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They continued to do the same for a couple of days: then they said, "Now we have trimmed his whole body, let us now fatten him."

Every day they gave him rice with meat and turmeric.[1] They ran races with him and said, "When he is able to outrun us, then we shall eat him." Every morning they ran a race with him, and when they came back they cast money.

In this way they tested those they had caught previously, and when they were satisfied they put a tremendous big iron pan[2] on the fire and filled this full with clarified butter. When they had thoroughly heated this, they tied their hands and feet and tossed them at once alive into this melted butter. They tried to kick, but when a person is tied up like that, how can he kick? They rolled round a moment, and so they died.

This young man stared at them whilst they were doing this. Now when they had in this way boiled a person whole they hung him in the door, and when they went out or came in they took a bit[3] and ate it. When they had consumed all the flesh they took the rest down and took out the liver and lungs and intestines, and cutting these into small pieces they cooked them with rice and turmeric and ate. The brain they also took out, baked it and ate it.[4]

When the young man saw all this done, and he was staring at it, he was frightened and said, "Woe is me, some day before long they will eat me also in the same way." He turned all this over in his mind and said, "Even if I should become strong, I shall not show myself superior to these in the meantime. But when I get strength I shall one day use my legs to good effect, I shall run straight home to my own country." He thought so and made his mind up to act so.

Santals have is the way in which they singe animals (to burn off hair, etc.) after they have killed them for food. Otherwise they resort to smoking to drive animals out of their lairs or to kill them. Santals generally have a sufficiency of the beings mentioned.

[1] The food described is not the ordinary Santal preparation; it is meant to describe something rich and savoury.

[2] The implement referred to is an iron pan ordinarily used for boiling the crushed sugar-cane in to prepare molasses. It is comparatively shallow, but very wide, likely the biggest vessel an ordinary Santal will know.

[3] The Santal word is the same as that used of ponies biting.

[4] The parts mentioned are considered delicacies, especially so by many carnivorous animals. With reference to the brain, it might be noted that when Santals perform a sacrifice the head with the brain is eaten (cooked with rice) by the sacrificer, sometimes assisted herein by other males, never by women. The brain may also be made into hand-bread, like here. That any specific gain should result from the eating of liver, etc., is not reflected on here. The Santals may have some vague notions on this point; I have heard it stated that they have eaten parts of leopards (very much against their taste, I think) because they believed that they in this way should acquire certain superior powers.

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After this he saw another thing with them, viz., when their own parents grew very old they threw them up on to the roof of their house; from there they rolled down and were killed by the fall. Thereupon they called all people together and said, "Our pumpkin ripened, fell down and burst."

The others then said to the man, "If it burst, let us eat it then."

Then, people tell, they boiled this one also in the way described in ghi and all the village people together ate him or her.[1] This the young man also saw them do.

As the days passed the young man commenced to feel very strong; when they raced along a road he also gained on them. So they said, "Now we shall run a race over high-lying rice-fields.[2] If he gains on us there also we shall eat him."

The next day they ran along over the rice-fields. To start with, the boy gained on the others. Then he suddenly remembered, "O! O! if I win the race they will eat me presently." With this in his mind, he ran at a fairly slow rate so they won. The young man then said to himself, "If I somehow or other can pass to-day and the coming night I shall surely run away to-morrow. If I win I shall get off; if they catch me they will eat me. Happen what may, I shall die if I stay, if I run I may also die; in any case I have no choice. Heigh ho, I shall have a try at running."

They did not eat him that day; in some way or other he passed the time till dawn next day. As soon as he got up he bound his loin cloth[3] tightly. They said to him, "O mother! you are girdling yourself exceedingly tight to-day!"

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[1] It might be very interesting to take up for investigation the item here mentioned, but space forbids. The Santals have never been anthropophagous, and look upon such practice with natural horror. As a matter of fact certain races are reported to do what is here told. It seems out of the question that a story like this should be due to imagination. It must be, it seems, either a reminiscence of the experience of someone who has been in contact with people who have such practices or a reproduction of a story heard from other peoples. The last is a possibility: it seems, however, to be more likely that the origin first suggested is the correct one. Then the interesting question arises, where have the ancestors of the present people been in contact with others who have for custom to eat their old people when they become decrepit. I have seen this practice mentioned in connection with the Gonds and also with the Birhor. I wonder, however, whether one might not get nearer to the origin by seeking towards the eastern and south-eastern countries bordering on India.

[2] The Santals have several classes of rice-fields, according to high or low position, the value of the fields corresponding to how high or low they are, the high ones are drier and consequently less valuable; they are also easier to pass along over. The low-lying paddy fields have more or less water always and on account of their natural position frequently have high ridges. This is in the hilly Santal country; the narrator naturally applies his own experience to his story.

[3] The loin cloth being what it is, it is necessary to make sure that it

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"Whilst lying down," he replied, "my loin cloth has become loose; I am arranging this."

Now they had fixed that day for eating him; they had agreed among themselves, "When we return from racing we shall immediately eat this one." But the young man had also decided to run away that very day. When they had all got up in the morning they said, "Come along, to-day we shall run the race over the rice-fields and the ridges. Who will win among us, we shall find that out to-day."

So they went, people tell, and fell in line in one place just as they had previously done. When all were ready and had said so,[1] they commenced to run. The young man ran from the very start with exceeding speed. He won on them and as soon as he had passed the high-lying rice-fields and ridges he ran straight for the ridges of the low-lying rice-fields, where there were high and steep ridges; running along in this direction he ran all he could; he ran something awful. He also jumped across the ridges, whilst those others floundered and fell on their faces whenever they tried to jump a ridge.

In this way, people tell, this young man ran very far, and coming here to the Santal country he escaped from those others and was saved.

And this young man told the story of the ghormuhas to the Santals, that it is so and so, and from that time the Santals know that beings having such a mouth and such a body exist, and that they eat human beings as described.

So there this story also is at an end.

Santali Text.

Hoṛ kuṛi hāṛũ koṛa reaṅ.

Sedae joḳheṇ, kathae, miṭṭaṅ atoren hoṛ gaḍa aṛe beḍare buṭko casleṭa. Aḍo ona buṭ beleḳ joḳheṇ se gadaroḳ khange ona do apan ąpinko horhoetakoa, jemon jāhāe se jāhānko aloko jom. Aḍo kuṛi gidṛako horhoko kolkakoa, ar oḳoeren gidṛa baṇuḳko hoṛ do haṛam hoṛ se buḍhi hoṛ hõko horhoegea, ar ḍherteṭ do gidṛakoge.

Aḍo onko moṭore miṭṭaṅ do juaṇ goḍoḳ kuṛigeye horho kan tahẽkana. Aḍo miṭṭaṅ hāṛũ aṇḍia do ona

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is properly fixed before starting running or commencing strenuous work. It is always done.

[1] It is likely not necessary to take this statement as a modern introduction; competition of the kind mentioned is fairly old among these peoples, I think.

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bute ńelket khan doe menkeʼa, Ceka lekate noa but doń joma? Miʼtań onko bulauko reaʼk iń upaia. Ado kathae, ceʼ laṛkore coń bahae gutukeʼte but godateye calaoena. Ado ona baha do but godareye dohokaʼka, ar aċ do bute joma. Ar laʼkgako hijuʼk khan, ona baha doe bagiaʼge ar aċ doe daṛkeʼge. Ado din hiloʼk onka agu aguteye parkauketko khan do, bako lagayea, jom ocoaegeako. Khange tayomte do onko tuluċe gateyena, ar baha do dingeye gutu aguia.

Khange uni juan kuṛiye tahēkana, uni kuṛi doe bulauente hāṛũ koṛa tuluċe gateyena, baṅmae jãwãeoʼk kana. Khange onko soṅgeten but horho gidra do oṛaʼkre bako laikeʼa, baṅma, uni phalna kuṛi do nonka onka? Ar uni kuṛi ma bae lai baṛayeʼ, okoe then hõ bae laiyeʼa; menkhan onko sãoten gidrako ńel tioʼkkeʼkinte onko gidra do ako oṛaʼkreko laileʼa.

Ado lai laitege uni kuṛiren eṅgat apat hõkin badaekeʼte akinren hoponera bogetekin ruheʼkedea. Ado apa bareko menkeʼa, Ma nui hāṛũgebon goṛea, ar baṅkhan do nãhãʼk disom hoṛ samaṅre lajaobon ńama.

Ado kathae, onka menkate uni hāṛũ doko sendra ńamkedeteko tuń goċkedea. Ado apat haṛame menkeʼtakoa, E ya, nui do babon giḍiyea, nui dobon jalaoegea.

Ado kathae, onka menkate sahanko ńam jarwakeʼte sarako benaokeʼa. Ado ona cetanreko dohokedete seṅgelko lagaoaʼa. Ado un jokhen uni kuṛi hõe calaoena. Ado apat baretko metae kana, Ceʼ lagiʼ am dom hijuʼk kana?

Adoe meneʼa, Ceʼ lekape rapaʼkede kana ona ńeńelgeń heċ akana; adoń menkeʼa, bhala hoṛ lekageko rapaʼkedea se ceʼ leka.

Ina kathae roṛ purautege sara reaʼk seṅgel do khub sardiyena. Ar tinre coń, kathae, gitil doe gocha tora akaʼ tahēkana, adoe men goʼkeʼa, Masę, dada, ńelkope serma ipil doko ceka baṛae kana. Ado kathae, un jokhen joto hoṛ noko hõko koyoʼk goʼkeʼa, un jokhen ona gitil do cotteye er goʼkaʼa; ado sanam hoṛko cubaʼk andmandaoena. Un jokhen aċ do ona sardi seṅgelreye don khańjoyenteye sati goċena.

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Adọ apat baret ạḍiko edreyena arko mẹnkeʼa, Nui kuṛi dọ hãṛũ jivige tahẽkantaea, tọbẹrege uniaḳ māyã bae chaḍaoleʼa. Nõkõe nonka aboe iạketʼbonteye dọn khañjọyena.

Adọ enka ruheʼ baṛawanteko um baṛayente oṛakteko calaoena.

Adọ niạ katha hõ ẹnḍege caba paḳ puciyena, bạnukanañ, chutiram.

TRANSLATION.

The Story of a Santal Girl and a Hanuman Boy.

Once upon a time long long ago, it is told, the inhabitants of a village had cultivated gram[1] on a plot of land lying along the bank of a river. When this gram was ripening or commencing to ripen they kept watch, each one at their own plot, to prevent people or any others from eating. They generally sent small girls to keep watch; they who had no children kept watch themselves, the old man or the old woman; mostly, however, the children kept watch.

Among these a girl just growing into maturity was watching. A male hanuman saw this gram and said, "How shall I manage to eat some of this gram? I must hit upon some means of fooling them." So, people tell, with some kind of bast or other he prepared flower garlands[2] and went to the gram field. Here he put the flowers down, while he himself was eating gram, and when people came to drive him off, he left the flowers there and ran away. Now when by daily bringing flowers in this way he had made them accustomed to it, they did not drive him off, but permitted him to eat. After some time he got on friendly terms with them and constantly prepared flower garlands and brought these.

The young girl referred to was there; she lost her head and became friends with the hanuman boy, that is to say, she married herself to him. Then did not the other gram-watching children tell this at home, saying, it is so and so with such and such a girl? The girl naturally did not tell; she did not tell anybody; but as the other children had seen the two they told in their respective homes.

The matter being told everywhere the girl's parents also

[1] The gram is the Cicer arietinum, L. Santals living in the Bengal districts are cultivating this; but it is doubtful whether they have been doing so for a long time.

[2] At certain festivals the Santals may put flowers on strings to decorate with; they may also use such garlands round the neck or in the hair, but very likely it is not an original Santal custom.

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got to know of it, and they gave their daughter a good scolding. And the father and brothers[1] of the girl said, "Come, we shall kill this hanuman, otherwise we shall be disgraced before the people of the land."

Thereupon, it is told, they tracked him down and killed him shooting him with an arrow. Then the father said, "I say, boys, we shall not throw him away, we shall cremate him."

Having said so, people tell, they collected firewood and built a funeral pyre, and having put him on this they set fire to it. At that time the girl also went there. Her father and brothers said to her: "For what purpose are you coming here?"

She answered, "I have come to see how you are cremating him; I said to myself, I wonder whether they are cremating him like a man or how they are doing it."

As she had said this the fire of the pyre commenced to burn very high. Now the girl had, as she came along, put some sand in a fold of her cloth. Then she said suddenly, "Look, elder brother, look at the stars, what are they doing." Now all of them also looked up, and at that time she quickly scattered the sand in the air, and all of them got sand in their eyes and became quite confused. During this the girl herself jumped up and threw herself down on the fiercely burning pyre and burned herself to death.

But her father and brothers became very angry and said, "This girl surely had the soul of a hanuman; therefore she did not give up her affection for him. Look, she did so and so to us and jumped upon the pyre."

After they had scolded in this way they bathed and went home.

So now there is an end of this story also; there is nothing more, nothing at all.

While many details of the above story have been adapted to Santal ideas and customs, as is always done when a fairy tale is borrowed and told by Santals, the substratum of the whole is non-Santal. The Santals have never practised sati; they have adopted cremation from the Hindus; formerly they buried their dead ones.

The position of a Santal woman is very much more free than among the caste people, and although cases of self-destruction, on account of the faithlessness of a lover or a husdand, are not unknown, they are very rare and not occurring after the death of a lover. Women are known to have committed suicide by hanging, because they have been caught with consan-

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[1] *Apa bare*, father and brothers of a girl, are always supposed to be the natural guardians and defenders of an unmarried daughter or sister.

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guineous males; they were unable to face the disgrace and the horror of the people.

That a Santal girl should fall in love with a hanuman is unheard, and unnatural, even in a fairy tale. I believe crimen bestialitatis is unknown among Santal women.

The explanation of the story seems to be that it refers to other actors than a Santal girl and a hanuman. If we for the hanuman substitute an aboriginal man, perhaps a Santal, and for the Santal girl read a Hindu woman, the story comes into another light and may be a reminiscence of something that has really happened.

Santali Text.

Hāṛũ koṛa reaḳ katha.

Tisre coṅ, kathae, Bhadoṛ cando joḳheṇ aema gidṛa gaiko aḍa hoṛhoṛ kan tahēkana, ar ona thenge miṭṭaṅ maraṅ ñōḳ ḍobhaḳre kicriċ doḥoṛ baṛaḳateko umoḳ kan tahēkana. Adoṛ kathae, oka seṇ khon coṅ hāṛũ koṛa doe ñir heċ goṭente miṭṭeṇ kuṛi gidṛa reaḳ lumaṃ kicriċ doṛ dareteye aṭkir rakaṕkeṭa. Khange onko gidṛa doṛ aua paṕakateko ñir rakaṕente apan aṕinaḳ kicriċko halaṅ baṛakeṭṭakoa. Khange miṭ hoṛaḳ doṛ baṇuḳ. Khange dare seṇko beṅgeṭ rakaṕkeṭteko ñelkede, hāṛũi hoboṛ akaṭ. Khange adoko koeye kanạ, Dentae, hāṛũ koṛa; kicriċ emkataeme.

Adoṛ hāṛũi meṇkeṭa, Iṅ ṭhene reben khan doṅ emkataea, ar baṅkhan oḥoṅ emlea.

Khange bhageteko capaṭede kana. Khange uni doṛ coṭteye aṭkir rakaṕkeṭa. Khange adoṃ gidṛa ar uniye aṭkir akaṭtae gidṛa doṛ oṛaḳteko ñir calaoente eṅgat apatko laiaṭkoa. Khange onko doṛ hoṛko riaukeṭkote aḳ sarko ṅamkeṭteko heċena, adoko metae kana, Dentae, hāṛũ koṛa; kicriċ emkataeme, ar baṅkhan doṛe tuṅ goċmea.

Adoe meṇkeṭa, Iṅ ṭhene reben khan iṅ emkataea, ar baṅkhan doṛ baṅ.

Adoṛ onkae meṇkeṭ khan doṛ tutuṅko poṛtoṇkeṭa Aḍi baṛiċ sarko aṛaḳkeṭa, meṇkhan baṅgeko tuṅ joṣ daṛeae kana. Khange tuṅ tuṅteko laṅgayen khanko meṇkeṭa, Nui gidṛa do cele hāṛũrege likha menaḳtaea, toḇetege babon tuṅ joṣ daṛeae kana. Adoṛ khange uniren eṅgat apatko raḳkeṭa. Adoko sereṅa:

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Dęntae, hāṛũ koṛa, māi reaḳ lumam luguṛi.
Iń ṭhene rębęn rębęn nęmkataeyań,
Iń ṭhene rębęn rębęn calkataeań.

Adǫ eṅgatteṭ iṇa dǫe koekedea, adǫ bae emade khan dǫ, apatteṭ hõ onka lekae koeye kana; sereń dǫ enkage. Kakatteṭ hõ enkageye koekedea, kąkitteṭ hõ enkage, sę joṭǫ hǫṛ enkageko koekedea, męnkhan ǫkǫe hõ bae emaṭkoa.

Adǫ sęsre uni kuṛigeye koekede khan dǫ, kathae, kicriċgeye ṭąmkur goṭadea. Khange uni kuṛi dǫ ona kicriċe saṗ goṭkeṭ khan dǫ, kathae, onategeye ǫr rakaṗ goṭkedea. Adǫ ǫṇḍęgeye bande ocokedeteye gugu taṗkedea. Ar uni kuṛi hõ unireye khusiyena, adǫ eṅgat apate męn oṭoaṭkoa, Ma ape dǫ tahẽkokpe; iń dǫń calaḳ kana.

Adǫ kathae, buruteye idikedea, ar miṭṭaṅ dhiri dandere ciąa akaṭ tahẽkana, ona danderteye idikedea. Siń mǫtǫre dǫ bahrekore sę dare buṭąkorekin tahęna, ar ńindą dǫ ona danderrekin gitiċa. Adǫ ul joḳ din dǫ ulkin jǫma; aċ dǫ dareteye dęjoka are ruku ńũraea, uni dǫe jǫma. Ar adǫm dǫ gęr gęrkateye ńũr goṭaea; ona dǫ halaṅ rakaṗkateye ńęl ṗąhila; gęr cinhąi ńamle khan dǫ bae jǫma, ona dǫe capaṭ giḍikaka. Adǫ uni hāṛũ koṛa dǫe męna, Cedaḳ iń iṭąṭ dǫ bam jǫmeṭa?

Adǫe metaea, Jǫm bi akante baṅ jǫmeṭa, tinąḳ iń jǫma? Jǫm jǫmteń laṅgayena.

Onka, kathae, ul din dǫ ul, kaṇṭhaṛ din dǫ kaṇṭhaṛ, sę jāhānaḳge jǫ beleḳ, onakogekin jǫma ar jāhānaḳ jǫjǫm sanaye, onageye ąguaea. Adǫ khange phǫl ḍǫl jǫmte uni kuṛi dǫe mǫkǫńena; adǫe metadea, Iń dǫ noako jǫmte dǫń mǫkǫńena, daka jǫm sanayediń kana; dę okarem daka ocoṅa?

Adǫ uniye męnkeṭa, Ho, ona reaḳ dǫ alom bhabnaḳa, ona dǫń ńawama. Adǫe metadea, Delaṅ bajarte am dǫ nahaḳ bajar noa sare dare buṭąre tahẽ hataṛokme, iṅge bajar khon dǫń ąguitalaṅa.

Adǫ sąri bajartekin calaoena, aċ dǫ dare buṭąreye dǫhǫkedete bajarte uni hāṛũ dǫe calaoena. Adǫ kuṅkąl ṭhen khon celaṅ ar karahiye ąṭkirkeṭte uni kuṛi ṭhene ągukeṭa; ar laḍuko cąktiko bogeteye ąguadea ar uni kuṛi dǫe jǫmeṭa. Ar caole hõ, kathae, ghąṛi ghąṛiye

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cupuť ąguae kana, ar buluṅ, sasaṅ, dąl, jǫtǫgeye ąguadea. Khange uni kuṛi dǫ sahankoe ńamkeťte sęṅgele jolkeťa are daka utukeťa, ar bana hǫṛkin jǫmkeťa. Khange kathae, uni hãṛũ hõ daheye jǫmkeť khan, ąḍi sebele ąikąukeťa, adǫe metae kana, Ią, nonkage adǫ dakaetalaṅme.

Adǫe metadea, Ąguaṅme, tǫbẽ baṅ dakaea?
Adǫe mẹnkeťa, Hẽ, ona dǫṅ daṛeaka.

Adǫ kathae, miťtaṅ bagwan tahẽkana, ǫṇḍẹkin mąṇḍiąuena; adǫ ǫṇḍęge tin din cǫkin tahẽana. Adǫ uni kuṛiye mẹnkeťa, Noa jǫmakte ma purungem emaṅ kan, mẹnkhan kicriċ thǫ bam kicriċedıṅ kana.

Adǫe mẹnkeťa, Acha, ona hõṅ ąguama.

Adǫ kathae, bajarteye calaoena; adǫ kicriċ thenge bako sor ocoae kan, bogeteko humąkede kan. Khange bae ągu daṛeaťa. Ar tayǫmte dǫ uni kuṛi hõ tąṇḍire gitiċ gitiċteye ąṛisena. Adǫ uni hãṛũi mẹnkeťa, Delaṅ burutegelaṅ calaka, ǫṇḍẹ khonge kicriċ dǫlaṅ juṛąua. Adǫ kathae, burutekin calaoena; adǫ ulko kaṇtharkoe goťadea, adǫe metadea, Do hąṭiąte idite ąkriṅme ar kicriċ kiriṅme.

Adǫ kathae, onakoe idikeťte ąkriṅkateye kicriċena, adǫ ǫṇḍęgeye bande pheraoente hǫṛ ato sęne calao idiyente kisãṛ thene kąmṛĩyena, uni hãṛũ ṭhen dǫ bae ruąṛlena. Adǫ uni hãṛũ dǫe ńęl hǫr bhagaoente iną dhara dhąri goṭae ńam baṛakedea; adǫ bae ńam daṛeade khan, ąḍiye bhabnayena, ar adǫ buruteye ruąṛ calaoena. Ar uni kuṛi dǫ tahẽyente hǫṛ koṛa ṭhene jãwãeyena, adǫ ęṇḍęgeye tahẽyena.

Katha dǫ cabayena.

TRANSLATION.

The Story of a Hanuman Boy.

Some time, who knows when, it so happened, people tell, that once in the month of Bhador a number of children were watching cattle that were having their midday rest; near the place was a fairly large pool of water, and having taken off their clothes they were bathing there. At that moment, people tell, a hanuman boy suddenly came running from somewhere and snatching away a girl's silk cloth he ran up a tree, taking

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it with him. The children ran frantic up out of the water and looked for their clothes. There was one whose cloth was not there. They looked up into the tree and saw the hanuman, he had it in his arms. And they commenced to beg him: "Give it, you hanuman boy, give her back her cloth."

But the hanuman said: "If she consents to stay with me I shall give it back to her, otherwise I shall certainly not give it."

They threw any number of stones to hit him; but he only climbed higher up taking the cloth with him. Some of the children and the girl whose cloth he had snatched away then ran home and told their parents. These collected people and having laid hold of their bows and arrows they went and commenced to speak to the hanuman: "Give it, you hanuman boy, give her back her cloth; if not we shall shoot you and kill you."

He said: "If she consents to stay with me I shall give it back to her, otherwise not."

As he spoke in this way they commenced to shoot; they let off an immense number of arrows, but they were utterly unable to hit him. When they got tired of shooting they said: "This girl's fate must surely be with this hanuman; this is why we are unable to hit him with our arrows." Then her parents commenced to cry, singing as follows:—

"Give it, you hanuman boy, give the girl's silken cloth!"
He answered:
"If she consents to stay with me I shall give her cloth;
If she consents to stay with me I shall hand over her cloth."

The girl's mother begged him with these words; but as he did not give it to her, the father also begged him, singing in the same way. Her uncle begged in the same way, her aunt also, and all of them implored him in the same way; but he did not give it to any of them.

When at last the girl herself begged him, he at once, people tell, let the cloth hang down towards her; and when the girl caught hold of the cloth he at once pulled her up with the cloth. And having made her put her cloth on there he at once took her on his back and was off with her. Now the girl also was pleased with having him, so she said to her parents, as she left: "You stay where you are; I am off."

The hanuman, people tell, took her to the hills; he had discovered a rockcave and took her there. During day-time they were living in the open or under trees, and at night they were sleeping in the cave. During the mango season they were living on mangoes; he himself climbed the trees and shook fruit down to her, and she was eating. Now and then he would let a fruit fall down to her after having bitten it;

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she would pick it up and first have a look at it; if she saw the marks of teeth she did not eat it, but threw it away. And the hanuman boy would say: "Why will you not eat what has been touched by me?"

She would answer: "I have had enough, therefore I do not eat any; how much am I to eat? I am tired of eating and eating."

In this way, people tell, during the mango season they were eating mangoes, during the jack fruit season jack fruit, or whatever fruit was in season, and whatever she had a wish to eat he brought to her. At last she got tired of eating only fruits and said to him: "I am tired of eating only this kind; I want to eat rice; please, where will you let me cook rice?"

He replied: "Oh, don't let this trouble you; I shall get you that." And he said to her: "Come along, let us go to the bazar; you remain under some tree this side of the bazar during my absence; I shall bring what is needed for us from the bazar."

Truth to tell, he went to the bazar; the hanuman left her sitting at the foot of a tree, whilst he himself went there. From a potter he snatched away a cooking pot and an earthenware flattish dish and brought these to the girl; he brought her also any amount of sweetmeats and cakes, and the girl was eating it. And, people tell, again and again he brought her also handfuls of rice, and salt, turmeric, split peas, in fact all he brought to her. The girl then found firewood and made a fire and prepared rice and curry, and they both ate. And, people tell, when the hanuman boy also had eaten some curds, he thought it tasted excellently and said to the girl: "I say, prepare food for us again in this way."

"Bring me the necessary," she replied; "then only I shall be able to prepare food."

He answered back: "Yes, I shall be able to do so."

There was a grove of trees somewhere, people tell, and there they remained; they lived there for some time, who knows how long. Then the girl said: "You are giving me this food and I am quite satisfied; but as for clothes, you do not clothe me."

"All right," he said, "I shall bring you clothes also."

He went to the bazar, people tell; but there they would not let him come near to the clothes; they beat him again and again. He was unable to bring this. Later on, the girl got tired of always sleeping in the open; and the hanuman said: "Come, let us go the hills; from there we shall provide clothes." So they went to the hills, and he plucked mangoes and jack fruit and brought her and said to her: "Do, take these to the market, sell them and buy clothes."

And she, people tell, took the fruit there and having sold it she procured clothes; and having changed her clothes and

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taken this on she went to a Santal village and took service with a wealthy man; she did not go back to the hanuman. The hanuman waited for her until he understood that she would not come; thereupon he searched for her everywhere in the neighbourhood; and as he was unable to find her he was very grieved and returned to the hills. The girl stayed where she was and was married to a Santal youth; and there she remained. The story is ended.

Several details of the story reproduced above might call for some explanatory remarks. To save space I shall confine myself to some general observations.

The story has been told so many times that it has become a true folk-tale. But even so the reader cannot avoid being struck by the behaviour of the hanuman; except for a few details naturally brought in when mentioning a monkey the whole story seems to be a tale of human beings, only that they are of different races. The hanuman represents an aboriginal or savage man, the girl belongs to some other race. The story might seem to presuppose that the girl is a Santal, in which case the hanuman would be some other race. One might in this case suggest that the story originated with people living in the far East. Another possibility, perhaps more likely, is that the story may have originated with people of the Aryan race, has afterwards been adopted by the Santals or their ancestors, and in the course of telling has been adapted to Santal ideas and got its present form. In any case there is every probability that the hanuman here represents a human being, deemed inferior to the race of the narrator.

The Santals have several stories referring to beings called by them rakas or rakhas (the word comes from Sanskrit rākshasa); I have sometimes got the impression that these beings might really be people of a foreign and savage race.

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On the Worship of the Deity Jalpeshvara in the District of Jalpaiguri in Northern Bengal.

By Sarat Chandra Mitra.

Jalpaiguri is one of the most northerly districts of the Province of Bengal. The tutelary deity of this district is Jalpeshvara or 'The Lord of Jalpesh'. The Deity's shrine is situated in the village of Jalpesh, which is situated about 12 miles to the east of the Jalpaiguri town. Hearing about the great

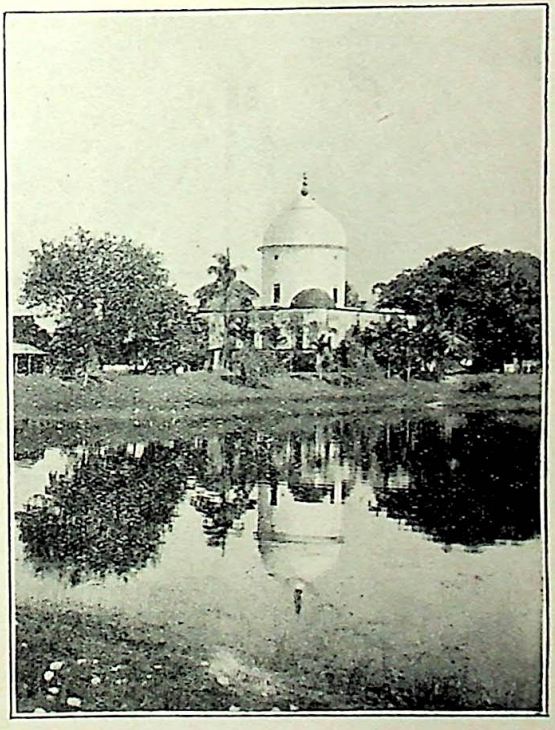

Fig. 1.—The Jalpeshvara Temple as seen from outside.

sanctity of this shrine and of the great veneration in which the deity Jalpeshvara is held by the people of the locality, I, accompanied by Mr. T. Mitra, Executive Engineer, P.W.D., Duars Roads Division, paid a visit to this temple on Tuesday, the 23rd

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December, 1930. This shrine or temple has a round cupola at the top and four rooms at four corners of the quadrangular basement-storey. The lower portion of the walls of the basement-storey is ancient and built with old small-sized bricks, while the upper portion of the basement-storey and the cupola are recent additions. A fine view of the temple of Jalpeshvara is represented in figure 1.

Proceeding inside the temple, we found that in the *sanctum sanctorum* was the stone worshipped as the symbol of Siva, which was placed inside a miniature well in the stone-flagged floor. As the 'dim religious light' of the interior rendered the stone-representative of Siva somewhat invisible, I felt it with my right hand and found that it was a block of (most likely) grey granite-like stone thinned at the top into the shape of a wedge, there being a ridge at the top of the wedge, while the sides sloped downwards. There are three bands on one side of the stone, as will appear from figure 2. This photograph gives

FIG. 2.—The Jalpeshvara Stone as seen from above.

an excellent top-view of the Jalpeshvara stone.

Just above the surface of the cavity in which this stone is lodged, there is a *Yoni* made of Jeypore marble which has been recently provided by a wealthy Marwari gentleman of the locality. Its shape is shown in figure 3. The letter *A* shows the miniature well in which the stone is placed. The well is about 1 foot deep. The Jalpeshvara stone is approximately 8 inches long and 4 inches broad. There is a local tradition to the effect that the bottom of the stone goes deep down into the earth and that the bottom cannot be reached howsoever much the surrounding earth is excavated. It may be stated here that the stone and the *Yoni* stand just below the centre of the rounded cupola which surmounts the shrine.

On enquiry from the attendant Brahman priest, I learnt

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the following tradition about the evolution of the cult of this deity :—

In ancient times, there were no Hindu residents in this part of Jalpaiguri. It was inhabited by the Kochs and the

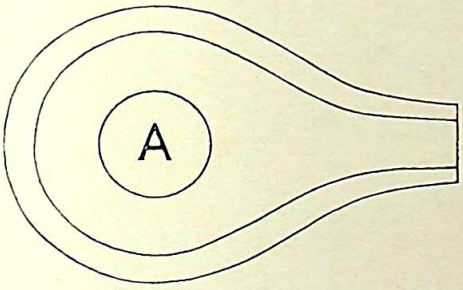

FIG. 3.—Marble *Yoni*.

Mechs who were the original inhabitants of this locality. Being attracted by the unusual shape of this stone, they worshipped it. It may be stated here that these Kochs and Mechs were Mongoloid tribes who had probably migrated from Burma and had settled in these parts. They gradually accepted the Hindu creed and adopted Hindu manners and customs.

About 400 or 500 years ago, Mahendra Deo Nārāyan, Raja of Cooch Behar, built a rude temple over this stone. This rude temple is the nucleus of the present splendid temple in which the deity is installed. The temple built by Raja Mahendra Deo was partially destroyed by the great earthquake of the 11th June, 1897. The present temple was built a few years back on the remains of the old temple.

This deity is worshipped by the Hindu inhabitants of Jalpaiguri for the attainment of whatever their hearts may desire. In the month of Baisakh (April-May) local women, who are desirous of having sons born to them, come to this temple and worship this deity with libations of milk which fills up the well, and pray for the boon of sons.

As this stone has now become a recognised symbol of Siva and is dubbed with the appellation of Jalpeshvara Mahādeva, a great festival is held here on the occasion of the Sivaratri festival in the month of Falguna (February-March). A fair is also held here on that occasion.

The priest informed me further that the *mantra* or the prayer-formula with which this deity is worshipped is :—

जल्पेश्वराय शिवाय नमः ॥

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Translation.

I make obeisance to the (deity) Jalpeshvara Siva.

Offerings of cooked rice (4 seers), pulses (1 seer) and vegetables are presented to the deity in the morning, and pancakes locally known as *luchis*, prepared from ½ seer of flour and fried in ghee and half a seer of milk are offered in the evening. These food-offerings are subsequently distributed to the attendant priest and the three servants of the temple.

There is a fine tank to the south of the temple. I was informed that, during the re-excavation of this tank a few years ago, several sculptured stone-slabs were found. One of these slabs with carvings in *alto relievo* has been dubbed with the title of Vasudeva and has been installed in a small temple to the east of the Jalpeshvara-shrine, while another slab, which is broken at the top and, which at present, bears no carvings on it has been given the appellation of Kuvera, King of the Yakshas. This broken slab has also been installed in a small temple which is situated to the south of the great sanctuary.

Both these minor deities, whose images are undoubtedly of Hindu origin, also appear to be worshipped, for I found offerings of flowers upon them.

Near the roots of a *peepul* tree (*Ficus religiosa*) on the south of the great temple, are to be found two or three stone slabs which have no carvings on them. They are not worshipped.

From an examination of the foregoing description of the Cult of the Deity Jalpeshvara, the following questions arise for purposes of discussion :—

(1) Whether the Cult of Jalpeshvara was in its inception, a form of primitive or aboriginal religious belief ? Whether it was, in that stage, Animism or Fetishism ?

(2) Whether there are instances on record of any nation of antiquity having worshipped stones ?

(3) Whether the Jalpeshvara-stone is of meteoric origin ? If so, was it embedded in the earth and, by its fall from the sky, attracted the notice of the Mechs and Kochs and led them to worship it ?

(4) In what stage of the evolution of Hindu religious worship or polytheism does the Cult of Jalpeshvara, in its present form, stand ?

(5) Why do the local women pray to Jalpeshvara for sons ?

I shall take up for discussion the questions (1), (2), and (3) together.

The ancient Hebrews, the Greeks, and the Romans worshipped stones and stone monoliths. The boulders of stones streaked with marks of vermilion, which are to be found at the roots of

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banyan (*Ficus indica*) and pipal trees (*Ficus religiosa*) in almost every village in the Indian countryside are instances of stone-worship by the Hindus. The lake-goddess, who is worshipped in a shrine on an island in the Chilka Lake in Orissa, is represented by an unhewn block of stone. Similarly, I have seen, in the very heart of the town of Jalpaiguri, an instance of the worship of stones by the Hindus. Just in front of the Swiss Chalet-like bungalow occupied by the Executive Engineer, P.W.D., Duars Roads Division, and midway in the open space between the gate of the said bungalow and the western bank of the Karala River, there are two pipal trees and a block of black rough stone (like jhāmā brick). There are vermilion marks on this block stone and the ignorant Hindus of this neighbourhood are beginning to worship it. This worship is, in its present stage, a form of Fetishism because the stone is being worshipped in its own character as a symbol. It may, however, develop, in course of time, into Siva worship.

Similarly, the Cult of Jalpeshvara may have been, in its inception, an instance of stone-worship by the primitive or aboriginal Kochs and Mechs and been borrowed from them by the Hindus.

The facts of the Jalpeshvara-stone being embedded in the earth and of the existence of indentations and fissures thereon lead me to suppose that this stone is of meteoric origin. The famous black stone which is built into the wall of the Kabah or the Sanctuary at Mecca and which is kissed by every Mahomedan pilgrim to that holy shrine is believed by many to be of meteoric origin. Thus we have two instances, on record, of meteoric stones being regarded as sacred by the Hindus and the Mahomedans respectively.

Having fallen from the sky, this meteoric stone was regarded by the aboriginal Kochs and Mechs as being the dwelling-place of an invisible spirit or being and was, therefore, regarded by them as sacred and was consequently worshipped. The Kolarian tribes of Chota Nagpore call the neolithic celts *ther-diri* or 'thunder-stones' and believe them to have fallen from the sky. They, therefore, regard them as sacred and possessed of curative properties. Occasionally, they worship these stones. In the view that the Jalpeshvara-stone is of meteoric origin, the Cult of Jalpeshvara is a form of Animism.

If the Jalpeshvara-stone is of volcanic origin, the Cult of Jalpeshvara is a form of Fetishism, because the aboriginal Kochs and Mechs worshipped the stone in its own character as a symbol and not as the dwelling-place of an invisible spirit. They worshipped it on account of its curious shape. But this view about its volcanic origin is untenable, if we take into consideration the two important facts, (1) that the Jalpeshvara-stone is embedded in the earth which is quite contrary to the universal procedure of placing *Siva-lingams* above the ground,

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and (2) that the stone bears indentations on its sides, the origin of which can only be explained by the fact that while passing through the denser atmosphere of the earth, the sides became by friction with air indented and the top assumed the shape of a wedge.

As regards the foregoing Question No. (4), it may be said that the Cult of Jalpeshvara, in its present form, is in the third stage of the evolution of Hindu religious beliefs, which has been designated by the Folklore Society of London as being 'Heterogeneous Polytheism with Idolatry', as this deity has now been installed as a member of the Higher Pantheon of the Hindus and has been dubbed with the title of Jalpeshvara Siva or an incarnation of Mahādeva. There is no trace of this deity having passed through the second stage and of having acted as *dvāra-pāla* (warder) of a higher God, nor of having passed through the first stage and of having been worshipped as a third-class godling presiding over a *devadekhni*-temple.

As regards Question No. (5) *supra*, its answer is easy to give for the phallus or *Siva-linga* and the surrounding *Yoni* are symbols of the procreative energy. Therefore, I am inclined to think that the local womenfolk worship the deity Jalpeshvara for obtaining the boon of having sons born to them. In many parts of Bengal, Hindu women worship various other incarnations of Siva for obtaining similar boons.

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The Hindu Calendar and the Earlier Siddhantas.

By Harit Krishna Deb.

Hindu Astronomy, as has long been known, may be considered to have been, at some epoch prior to 500 A.D., influenced by Grecian astronomy. When precisely the influence began to operate, we do not yet know. Prof. Whitney expressed the opinion that, since the Hindu system is wanting in the improvements introduced into Grecian astronomy by Ptolemy (c. 150 A.D.) and since there are differences in detail between the Hindu system and the teaching of the *Syntaxis* such as in the different dimensions assigned to the epicycles of the planets, the Hindus derived their knowledge of Western astronomy at an epoch anterior to Ptolemy. Against this view it has been urged by Thibaut,[1] following Biot, that it is not impossible for the Hindus to have derived their knowledge of Alexandrian astronomy not directly from works like those of Hipparchus or Ptolemy but indirectly and imperfectly from manuals used by Greek astrologers and almanac-makers who might have neglected to take account of refinements introduced by the great astronomers and might have at the same time preserved elements of older doctrines, just for facility in calculation.

Whatever may have been the actual date of introduction of Grecian astronomy, the principles of which may have been introduced not suddenly at one particular epoch but gradually and at different periods, the earlier Indian astronomers adhered to what is known as the quinquennial *yuga* in framing their calendar. The *yuga* is based on the assumption that 1830 days = 5 Solar years = 62 Synodic revolutions of the moon = 67 Sideral revolutions of the moon. The starting point of the *yuga* is, in all authorities except one, made to coincide with Māgha *śukla* 1, when both the sun and the moon stand at the beginning of the nakṣatra Dhaniṣṭhā. The exception referred to is the Jaina work Sūrya Prajñapti, according to which a *yuga* begins with the moon at the beginning of the nakṣatra Abhijit, and the sun in opposition.

In the Paitāmaha Siddhānta, of which we have a representation in Ch. XII of Varāha Mihira's Pañcasiddhāntikā, a

1 *Pañchasiddhāntikā*, text, commentary and translation, ed. Thibaut and Sudhākara Dvivedī, Benares, 1889; Introduction, p. LI, where reference is made to Whitney and Biot. No copy of this valuable volume seems to exist in the Asiatic Society's collection. Biot's opinion is found in his *Études sur l' astronomie indienne et sur l' astronomie Chinoise*, Paris, 1862, pp. 205ff as kindly looked up for me by Mr. van Manen.

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definite year is mentioned for the commencement of a quinquennial yuga. In st. 2, we read :—

dvyunaṁ Śakendrakālaṁ pañcabhir uddhṛtya śeṣavarṣāṇām |
dyugaṇaṁ Māghasitādyam kuryād dyugaṇaṁ tadahanyudayāt ||

'Subtract 2 from the *Śakendra-kāla* (the years of the Śaka era) and divide by 5; with the remainder form the *ahargaṇa* beginning with the white half of Māgha, the *ahargaṇa* being calculated from the beginning of the day, *i.e.* from sunrise.' As the *Śakendra-kāla* represents the number of Śaka years elapsed, a new *yuga*, as rightly observed by Thibaut (*op. cit.*, p. 67), began in 2 Śaka elapsed, st. 3 runs :—

saikasaṣṭhyaṁśe gaṇe tithir bhamārkaṁ navāhate' kṣyarkaiḥ |
digrasabhāgaiḥ saptabhirūnaṁ śaśibhaṁ Dhaniṣṭhādyam ||

'Add to the *ahargaṇa* its own 61st part; the result is the *tithi*. Multiply it by 9, and divide by 122; the result is the Sun's nakṣatra. Multiply the ahargaṇa by 7, divide by 610, and deduct (the result from the ahargaṇa); the result is the required nakṣatra, reckoning from Dhaniṣṭhā.' It will be observed that the sun's position is given here with reference to the *nakṣatra*, not with reference to the *rāśi* as in the later period. We may infer that, even after Śaka 2 elapsed, the *rāśi*-system had not yet supplanted the *nakṣatra*-system in calculating solar motion.

Again, since st. 2, reckons a new quinquennial yuga to start from Śaka 2 elapsed or 81 A.D., we may infer that the five-yearly yuga was in vogue at least down to 86 A.D.; for the rule laid down in the Paitāmaha Sid., if it had been composed prior to that year, could not have directed us to subtract 2 from the Śakendrakāla and then *divide by* 5. We have confirmatory evidence from Varāha Mihira's Bṛhat Saṁhitā.[1]

In chapter 8 of that work is given an exposition of the 60 years cycle of Jupiter composed, as he says, of 12 five-yearly periods, the years of every such period being designated : (1) saṁvatsara, (2) parivatsara, (3) idāvatsara, (4) anuvatsara, (5) idvatsara. These designations correspond to these named by Garga as quoted in the commentary on Jyotisha, 10. (Vedic Index, II, 412. n. 9.) And, as the five-yearly yuga is specially associated with the name of Garga, we may infer that

1 Saṁvatsaro' gniḥ parivatsaro'rka idādikaḥ śītamayūkhamālī |
prajāpituścāpyanuvatsaraḥ syād idvatsaraḥ śailasutāpatiś ca ||
(Br. S., S. 24).

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the 60-years cycle of Jupiter as expounded by V. M. consisted of 12 five-yearly yugas. The inference is borne out by a consideration of V. M's rule for finding out the Jovian saṁvatsara, set forth in the same connexion :—

jātāni varṣāṇi Śakendrakālād 'dhatāni rudrair' guṇayec' caturbhiḥ |
navāṣṭapañcāṣṭayutāni kṛtvā vibhājayec' chūnyaśarāgarāmaiḥ || 20.
phalena yuktaṁ Śakabhūpakālam saṁśodhya ṣaṣṭyāviṣayairvibhajya |
yugāni Nārāyaṇapūrvakāṇi labdhāni śeṣāḥ kramaśaḥ samāḥ syuḥ || Bṛ. S., 8. 21.

'Multiply the years elapsed of the Śaka king by 11, and (multiply) the product by 4; add 8589; divide by 3750; to the quotient add the Śaka years (elapsed); divide by 60; divide the remainder by 5; the quotient gives the number of the yuga beginning with Nārāyaṇa, and the remainder gives the number of years, etc., pertaining to the yuga.' V. M., then proceeds to name the 12 five-yearly yugas, Viṣṇu (=Nārāyaṇa), Surejya, etc., into which the 60-years cycle is divided. The steps in the process ending with the direction 'divide by 60' give us the number of the 60-years cycles completed as well as the number of the year of the current cycle. It is clear that the year from which, according to this formula, the 60-years cycle must be reckoned is the year 76 A.D,[1] when the first year of the cycle, as also the first year of its first Yuga (Viṣṇu), is held to have started, the year being designated Prabhava. Now, V. M. states (Bṛ. S., 8. 27).

ādyam Dhaniṣṭhāṁśamabhiprapanno Māghe yadā yātyudayaṁ Surejyaḥ
Ṣaṣṭyabdapūrvaḥ Prabhavaḥ sa nāmnā pravartate bhūtahitastadābdaḥ. ||

'When Jupiter rises, in the month of Māgha, having arrived at the first portion of Dhaniṣṭhā, then commences the first year of the 60-years (cycle), by name Prabhava, auspicious to living beings.' Clearly, therefore, the cycle is held to have commenced in 76 A.D., with Jupiter at the beginning of nakṣatra Dhaniṣṭhā, in the month of Māgha. We are at once reminded of the statement in the Paitāmaha Siddhānta discussed above, according to which a five-yearly yuga began in 81 A.D., that is, exactly five years after 76 A.D.—with the Sun and

[1] This may be tested by applying the formula to any proximate year expressed in the Śaka era. Thus, taking the year 10 Śaka, we have $10 \times 11 \times 4 + 8589 = 9029$. Dividing by 3750, the quotient is 2. Adding 2 to 10, we get 12; dividing by 60, we obtain 0 as quotient and 12 as remainder, showing that the first 60-yearly cycle had not passed by, but the year 12 of the cycle was on in 10 Śaka; so that the initial year is 76 A.D.

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moon at the beginning of nakṣatra Dhaniṣṭhā, it being then the month of Māgha. There can thus be no doubt that the 60-years cycle of Jupiter was derived, at some time not earlier than 76 A.D., by combining the 12-yearly cycle of Jupiter (of the mean-sign variety) with the five yearly yuga; so that the five-yearly yuga must have been in current use at least down to 76 A.D. If we could more precisely determine the period at which the 60-years cycle was thus devised, we might thereby determine the date, necessarily later than 81 A.D., at which the yuga continued in use. For this determination we have, unfortunately, no conclusive data but only certain hints which we shall now proceed to combine for a plausible hypothesis.

It will have become apparent that the Jovian years composing the 60-years cycle are not solar years but years of the mean-sign variety, each year commencing when Jupiter enters a *rāśi* ('sign of the Zodiac') with reference to his mean motion and longitude, its duration being about 361·02 days. The use of this variety of the cycle (representing, according to Fleet, its original constitution [1]) is traced back in inscriptional records to a period not much posterior to V. M.; and it still continues in use in Northern India. The South Indian mode of reckoning the Jovian years as equivalent to solar years was of later growth and involved a complete divorce from the movements of Jupiter. Obviously, therefore, the *rāśi*-system had been already introduced when the 60-years cycle was devised. A comparison of the Paitāmaha Siddhānta with the Vāsiṣṭha Siddhānta, as represented in V. M.'s Pañcasiddhāntikā, will help to indicate the period when the *rāśi*-system was adopted. As argued above, the Pait. Sid. after stating (st. 2) that a five-yearly yuga began in Śaka 2 expired, proceeds (st. 3) to set forth rules for calculating the Sun's position *with reference to the nakṣatras*; showing that, even after 81 A.D., the *rāśi*-system had not yet come into vogue. The Vāsiṣṭha Siddhānta however makes use of the *rāśi*-system. That it was appreciably but not very much later than the Paitāmaha Siddhānta follows from the fact that it agrees with the Paitāmaha in assuming an equal daily increase in the length of the day; and it also gives rules of a type distinctly superior to those found in the Paitāmaha. Moreover, the Vāsiṣṭha, unlike the Paitāmaha, treated of the motions of Venus, and probably also of the other planets, as shown by a consideration of chapter 18 of V. M.'s Pañcasiddhāntikā. As Thibaut has left doubtful the point whether the planetary motions as set forth in sts. 1–60 of this chapter are all derived from the Vāsiṣṭha, and as a discussion on the point is likely to throw some light on the period of the Vāsiṣṭha, we proceed to discuss it here.

Chapter XVIII of the Pañca-Siddhāntikā consisting of 81

[1] Art. 'Hindu chronology' in *Encycl. Britt.*, 11th ed.

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stanzas, ends with the statement (in a colophon)—*iti Pauliśa-Siddhānte tārāgrahā nāmāṣṭādaśo'dhyāyaḥ*. Stanzas 1–5 deal with the motions of Venus; and after stanza 5, it is added—

Vāsiṣṭhasiddhānte śukraḥ...

The *prima facie* inference would be that stanzas 1–5 are borrowed from or based upon the Vāsiṣṭha-Siddhānta, the rest being derived from the Pauliśa. This inference is borne out by the fact that, as admitted by Thibaut (*op. cit.*, p. xlviii) there is a difference between the rules concerning Venus as set forth in stanzas 1–5, on the one hand, and the rules concerning the remaining planets as set forth in subsequent stanzas, on the other; namely, that, whereas the latter take into account the equation of the centre, the former fail to do so. Thibaut attempts to explain away this difference by assuming that it 'may simply be due to the circumstance that the equation of the centre of Venus, being very much smaller than that of the other planets, was disregarded on purpose'. Against this, we must note, firstly, that the order in which the planets are treated in stanzas 1–60 is: Venus, Jupiter, Saturn, Mars, Mercury, while the order of treatment in stanzas 66–81 is: Mars, Mercury, Jupiter, Venus, and Saturn, which is also the order adopted by V. M. in his Bṛhat Saṁhitā; and secondly, that the colophon: *Vāsiṣṭhasiddhānte Śukraḥ* appears not after stanzas 1–60 but after stanza 5, closing the discussion on Śukra. If stanzas 1–60 had formed one single whole, cited from the Vāsiṣṭha, the order of treatment of the planets would most likely be in conformity with the order followed by V. M., not only at the end of this chapter, but also in his Bṛ. S.; and the colophon: *Vāsiṣṭhasiddhānte*, etc., would have appeared after stanzas 1–60. Indeed the form of the colophon: *Vāsiṣṭhasiddhānte Śukraḥ* shows that the motions of Venus alone are considered to have been taken from the Vāsiṣṭha Siddhānta. Regarding the rest of the chapter, the position seems to be somewhat as follows:—

Stanzas 6–60 treat of the motions of Jupiter, Saturn, Mars, and Mercury. Stanzas 66–81 also treat of motions of these four planets and Venus. Of the intermediate stanzas, numbered 61 to 66 in the MSS., those numbered 61, 63, and 65 mention V. M. by name and praise him, and that numbered 62 contrasts his performance with that of two other writers, Pradyumna and Vijayanandin. That the position of those stanzas is anomalous has been observed by Thibaut who is inclined to look upon them as 'concluding stanzas of the whole work' (p. xlvi). But it may be questioned if V. M. himself was the author of all these stanzas. In the first place, V. M. begins his treatise, the Pañcasid, by speaking in the first person; he could hardly consistently name himself in the third person at the conclusion. In the Bṛhat Saṁhitā also

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V. M. speaks of himself in the first person. On this ground alone, stanzas 61, 63, and 65 should be deemed not to be concluding stanzas of the Pañcasiddhāntikā. Secondly, the wording of stanza 61 is against the view that V. M. was its author:

Āvantyakaḥ samāsācchiṣyahitārthaṁ tataḥ sphuṭāṅkasamam. | cakre Varāhamiharas Tārāgrahakārikātantram || (61).

The use of the remote past (*lit*) in the form *cakre* is probably significant, and the appearance of the word *kārikā* in the designation *Tārāgrahakārikātantram* seems likewise to denote a species of composition different from the Pañcasiddhāntikā. Thirdly a comparison of stanza 64 with the concluding chapter of the Bṛ. S., indicates that the stanza is probably an adaptation from the Bṛ. S. We shall quote them side by side:—

Bṛhat Saṁhitā, 106.	*Pañcasiddhāntikā, 18.*
jyotiḥśāstrasamudram pramathya matimandarādriṇātha mayā | lokasyālokakaraḥ śāstreśaśāṅkaḥ samutkṣiptaḥ | (1)	
pūrvācāryagranthāḥ notsṛṣṭāḥ kurvatā mayā śāstram | tānavalokyedañca prayatadhvaṁ kāmataḥ sujanāḥ | (2).	prastāve'pi na doṣān jānannapi vakti yaḥ parokṣasya |
athavā bhṛśamapi sujanaḥ prathayati doṣārṇavād guṇaṁ dṛṣṭvā | nīcastadviparītaḥ prakṛtir iyaṁ sādhvasādhunām | (3).	prathayati guṇāṁśca tasmai sujanāya namaḥ parahitāya | (64).

In the Br. S., V. M. first states that he had composed that treatise by churning the ocean of older astronomical treatises; and pleads that as he has not neglected the works of previous authoritative writers (*pūrvācāryāḥ*), good men (*sujanāḥ*) should, after seeing those as well as this, freely (*kāmataḥ*) study (what appears to be the best). He then expresses the belief that good men, if they see merit (*guṇa*) in an ocean of demerit (*doṣa*), greatly praise (*prathayati*) the merit, while the opposite is done by the mean: such is the nature of the good and such the nature of the bad. Here the readers, assumed to be good men (*sujanāḥ*), are requested to see for themselves the Br. S., as well as the earlier works and freely make their choice regarding what is worthy of study. The author has no doubt that the readers, being good men (*sujanāḥ*), will praise what is meritorious. The stanza of the Pañca-Sid., on the other hand, says:

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'Obeisance to him, the good (*sujanāya*) and the benevolent, who praises (*prathayati*) merits (*guṇān*) and does not speak of the demerits of (a person or authority who is) out of sight, even though he happens to know the demerits and an opportunity (to speak of those demerits) occurs.'

Here, V. M. is himself conceived of as the *sujana*. We discern here the tone of an admiring disciple of V. M., a disciple who, taking his cue from the Br. S., seeks to ascribe to his master the goodness which the master evaluates there with reference to his (the master's) prospective readers. The fact that obeisance is actually made here to V. M. is proof positive that the verse cannot be his own.

There remains for our consideration st. 62.

> Pradyumnabhūmitanaye jīve saure'tha Vijayanandikṛte |
> budhe ca bhagnotsāhaḥ prasphuṭam idaṁ karaṇaṁ bhajatām || (62).

'Let him who is discouraged by (the theory of) Mars (as formulated) by Pradyumna, and likewise by (the theory of) Jupiter and Saturn, and by (the theory of) Mercury, resort to this very accurate manual (*karaṇa*).' (For the definition of a *karaṇa*, see Thibaut in *J.A.S.B.*, 1884, p. 261.)

This verse, apparently, is not open to the objections urged above. It seems to be genuine; but, if so, its position should be just after stanza 60, and just before stanza 61. As however it comes after stanza 61, in our MSS., it may appear to belong to the ungenuine group of verses introduced with stanza 61. Its contents, on the other hand, connect themselves with the preceding stanzas (6–60) in a peculiar way: Those stanzas, as already remarked, are concerned with the motions of Jupiter, Saturn, Mars, and Mercury; the treatment of Venus having been completed with stanza 6 against which the colophon appears—*Vāsiṣṭhasiddānte sukraḥ*. Now this stanza 62 mentions two authorities, Pradyumna in connexion with Mars, and Vijayanandin in connexion with Jupiter and Saturn and probably also with Mercury, leaving aside Venus. Evidently therefore, Pradyumna had written about Mars, and Vijayanandin about Jupiter and Saturn and probably, Mercury; but what they had written lacked accuracy, and that is why a *karaṇa* or manual setting forth reliable rules had to be composed. The question arises: what precisely is the *karaṇa* referred to here? Does it refer to the rules which follow (viz. stanzas 65–81) or to the rules which precede the verse under consideration (viz. stanzas 6–60)? Or, does it refer to the entire work, the Pañcasiddhāntikā? That the third is the best alternative seems to follow from V. M.'s remark in chapter 1 of his Bṛ. S., to the effect that, in his previously composed *karaṇa*, he had treated of the rising, setting, retrograde motions, etc., of the planets.

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The *karaṇa* spoken of here is obviously the Pañcasiddh, as understood also by the commentators. If, therefore, the *karaṇa* referred to in stanza 62, be the entire work known as the Pañcasiddhāntikā, the stanza should be deemed to form the concluding verse of that work. By placing it after st. 60, we can perceive a natural nuance of sense, for stanza 60 runs :—

jñasitārejyārkonāḥ śaśinaḥ pratyuttaraṁ khagāmśena |
jñātvaivaṁ vikṣepād ādeśam anāgataṁ kuryāt || (60).

'Mercury, Venus, Mars, Jupiter (and Saturn ?) (become visible in the East) when they are less advanced in longitude than the Sun by the amount of the planetary degrees (as calculated above) ; in the moon's case the reverse takes place. Having thus ascertained (all requisite items) from the latitude, the astronomer may make declarations regarding future planetary occurrences.' (Thibaut.)

The true nature of stanzas 65–81 will now be manifest. Thibaut has already remarked on the extraordinary character of the rules contained therein : they are not only supplementary but also unique and out of harmony with the data of Hindu astronomy. It cannot even be urged, in favour of their genuineness, that the MSS. here are faulty ; for, as Thibaut has pointed out (p. xlvii), the MSS. just at this place are fairly correct and appear to call for no immediate incisive emendations. From what we have seen regarding the stanzas (61, 63, 64, 65) adumbrating these rules, they may with confidence be set down as l a t e r i n t e r p o l a t i o n s. As a matter of fact, the *karaṇa* known as the Pañca-Siddhāntikā came to an end with stanzas 60 and 62, and the rules regarding planetary motions given in the preceding verses left no room for a further discussion of the same topic in the original scheme.

The foregoing considerations tend to show that we should regard the last chapter of our MSS. of the Pañca-Siddh. as consisting, *firstly*, of stanzas 1–5 dealing with Venus, ascribed in the colophon to the Vāsiṣṭha ; *secondly*, of stanzas 6–59 dealing with Jupiter, Saturn, Mars, and Mercury ; *thirdly*, of stanzas 60 and 62, by way of summarising and supplementing the rules set forth in the treatise regarding not only the above planets but also the moon, and of bringing the treatise to an end with a mention of Pradyumna as having written on Mars, and of Vijayanandin as having written on Jupiter, Saturn and Mercury ; *fourthly*, of stanzas 61, 63, 64, and 65 as adumbrating the *Tārāgraha-Kārikātantram* represented by the body of rules which constitute the *fifth* group (stanzas 66–81) in the chapter. The *second* group of stanzas (6–59) thus appears to have been related to the works of Pradyumna and Vijayanandin, as distinguished from the *first* group consisting of stanzas 1–5 which the colophon declares to be based upon the Vāsiṣṭha. Of Pradyumna we have no independent collateral information, Pradyumna as

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an astronomical writer being barely mentioned by Alberuni.[1] A Vijayanandin also is alluded to by Alberuni[2] as the author of *Karaṇa-tilaka*; but, as a rule ascribed to him directs us to deduct 888 from the Śaka-kāla for finding the ahargaṇa, this Vijayanandin cannot be the one referred to by V. M., unless of course we are prepared to show that stanza 62 of the Pañca-Siddh. is also an interpolation of such a late age. The Brahma-Sphuṭa Siddhānta, however, mentions a Pradyumna and a Vijayanandin who may with reason be identified with the Pradyumna and the Vijayanandin of our stanza. The mention occurs in a passage, discussed by Thibaut (*op. cit.*, pp. xxvi, xxxix), which seems to state that Śriṣeṇa, by piecing together data found in various authorities, composed a very heterogeneous treatise, the Romaka Siddhānta (which however differed from the Romaka S. used by V. M.).

Śrīṣeṇa Viṣṇucandra Pradyumnāryabhaṭa-Lālasiṁhānāṁ
grahaṇādivisaṁvādāt pratidivasaṁ siddham ajñatvam.
yugayātavarṣe bhaganān Vāsiṣṭhān Vijayanandīkṛtapādān
. . . . . .
Śrīṣeṇena gṛhītvā . . . . . .

'The ignorance of Śrīṣeṇa, Viṣṇucandra, Pradyumna, Āryabhaṭa, and Lālasiṁha is daily proved by their false assertions regarding eclipses, etc. . . . . .
. . . . By Śrīṣeṇa who adopted the elapsed years and the revolutions of the yuga pertaining to Vāsiṣṭha as made a basis of by Vijayanandin . . . . . .' Pradyumna, apparently, had written on eclipses; and Vijayanandin, apparently, had effected a recast of the Vāsiṣṭha so far as the number of elapsed years and the revolutions of the yuga were concerned, already before Śrīṣeṇa. There was another recast of the Vās. by Viṣṇucandra, as the concluding line of the same passage informs us; but we know nothing about its contents. Thibaut has remarked that the word p a d a, in the sense of a 'remainder' that is made a basis for further calculation, is characteristic not only of chapters II and III but also of the stanzas in the earlier portion of chapter XVIII relating to Jupiter, Saturn, etc.,—a fact which to him 'appears to strengthen the conclusion that that whole part (stanzas 1–60) epitomizes the doctrines of Vāsiṣṭha.' But it should be remembered that the word *pada* in chapter XVIII occurs only in connexion with Jupiter and Saturn, and not in connexion with the other planets. Consequently, if its use be considered peculiar to Vās., we should infer that the verses relating to Jupiter and Saturn only 'epitomize the doctrines of the Vāsiṣṭha.' Indeed, the absence of the expression from the

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1 *India* (Sachau, Trübner's Or. Series), I, p. 158.
2 *ibid.*, II, pp. 49-50.

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verses relating to Venus and Mercury might lead us to suppose, on Thibaut's theory, that they are taken from a source different from the Vāsiṣṭha. The fact is, as admitted by Thibaut, that the use of the word *pada* in this sense is not peculiar to Vās.; it occurs not only in the Vāsiṣṭha (Ch. II) but also in the Pauliśa (Ch. III). Here, the final colophon *iti Pauliśa-Siddhānte tārāgrahā* . . . . indicates the source. Indeed, what prevented Thibaut from accepting this indication was that it would conflict with his view that stanzas 66–81 are referred to by the colophon (p. xlviii). He however recognised that, were it not for what he thus took to be 'a direct assertion made in the colophon (of the Pauliśa being the source of the rules contained in stanzas 66–81), nobody I suppose would be inclined to trace the determination of periods given in it to a Siddhānta which seems to have been specially dependent on Greek teaching.' The real character of these stanzas (66–81) being as analysed above, we need feel little hesitation in affiliating the colophon—*Pauliśa-siddhānte tārāgrahā* . . . .—to stanza 62 which is the final stanza in chapter XVIII of the Pañca-Siddh. and closes that treatise. It thus becomes clear that the colophon *Vāsiṣṭhasiddhānte śukraḥ* belongs to stanzas 1–5 dealing with Venus, while the colophon *Pauliśasiddhānte tārāgrahā* . . . . belongs to stanzas 6–62 (excluding 61) dealing with Jupiter, Saturn, Mars, and Mercury. The occurrence of *pada* in connexion with Jupiter and Saturn, but not in connexion with Mars and Mercury, shows nothing more than that the Pauliśa, in framing these rules intended for easy practical application, did not feel called upon to adhere to any peculiar terminology. Nor need we be at a loss to explain why the motions of Venus are given not according to the Pauliśa but expressly according to the Vās.; the reason is that, in the case of Venus, owing to the small eccentricity of its orbit, the equation of its apsis could well be neglected, so that the Vās. rule would be as serviceable as any other.

It is thus clear that in Chapter XVIII, the rules regarding Venus alone should be deemed to have been derived from the Vāsiṣṭha. As stated already, these rules fail to take into account the equation of the centre; they depend wholly on the equation of the conjunction. This circumstance seems to warrant an inference regarding the Vāsiṣṭha's relationship to Ptolemy. Thibaut has pointed out (*op. cit.*, p. lii) that the two inequalities were first separated by Ptolemy; and, consequently, Hindu astronomical works (e.g. the Sūryya Siddhānta) in which the anomaly of the apsis and the anomaly of the conjunction are clearly distinguished are later than Ptolemy, from whom alone, directly or indirectly, they could have derived their theory.' It follows that every Hindu astronomical work treating of planetary motions without taking account of the two separate inequalities should be dated prior to its

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author's knowledge of Ptolemy. Nevertheless, Thibaut imagines (*op. cit.*, p. xlviii) that 'the equation of the centre of Venus, being very much smaller than that of the other planets, was disregarded on purpose'. Admitting such a possibility in the case of Venus, we cannot imagine that any astronomer acquainted with the equation of the centre would 'disregard on purpose' that equation in the case of the other planets. Now, the Vāsiṣṭha, as urged by Thibaut (*ibid.*, p. xlvii), must have possessed a knowledge of the revolutions not only of Venus but of other planets as well. Why, then, does V. M., cite from it rules relating to the motions of Venus alone? Obviously, the rules given in the Vās. regarding the motions of planets other than Venus were found to be so rough, owing to its failure to take account of the two planetary inequalities, that their adoption would introduce flagrant discrepancies between calculation and observation which it was V. M.'s special care to avoid, particularly in this chapter treating of the true courses of the planets. The Vās. was apparently unaware of the two separate inequalities; there is no likelihood of its having deliberately discarded this knowledge.

When precisely this knowledge reached the shores of India, cannot be determined, on the available data. The rules given in Chapter II of the Pañca. S., on the authority of the Vās., show that the Vās. was composed from the standpoint of Avanti or Ujjayinī, a city with which Græco-Roman trade is well attested for the period of Ptolemy. It would *a priori* appear therefore that no considerable interval need be assumed to have elapsed between the publication of Ptolemy's astronomical treatise and the transmission of its contents to Ujjayinī. We must remember however that Ptolemy's knowledge of Ujjayinī was itself out of date: he mentions Caṣṭana (Tiastanes) as the only ruler at Ujjayinī (Ozene) whereas the Andhau inscription shows that, already in 130 A.D., Caṣṭana was ruling jointly with his grandson Rudradāman who, moreover, appears from his Girnār inscription to have already become the sole ruler in 150 A.D.[1] In fact, Ptolemy drew his materials largely from Marinos of Tyre who flourished about a generation earlier than Ptolemy. If, then, with all the Græco-Indian trade relations subsisting at this epoch, Ptolemy himself could find it necessary to be a little out of date regarding his knowledge of Ujjayinī, we cannot fairly assume that a knowledge of his astronomical work was transmitted to Ujjayinī immediately after its publication.

We may conclude therefore that the Paitāmaha S., as represented in V. M., was composed after 86 A.D., and that the

[1] *Zeits. f. Ind. u. Iran.*, 1922, p. 255. The joint-rule explanation is due to Dr. R. C. Majumdar; see *Ind. Ant.*, 1918.

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Vāsiṣṭha known to V. M. was composed later still but before a knowledge of Ptolemy's astronomical treatise reached Ujjayinī. As however the Vās., employs the *rāśi*-system for Solar motion in place of the nakṣatra-system employed in the Pait., it would seem that the rāśi-system was introduced into India, at some date later than 86 A.D., but before a knowledge of Ptolemy's Syntaxis reached her shores. It follows that the 12-yearly cycle of Jupiter of the mean-sign variety, involving an application of the rāśi-subdivision of the ecliptic to Jupiter's motion was devised appreciably later than 86 A.D.; and the 60-yearly cycle of Jupiter, based upon a combination of this 12-yearly cycle with the five-yearly Yuga, was devised later still. The five-yearly Yuga was thus in vogue considerably later than 86 A.D.

The principle underlying the five-yearly Yuga is, as I stated at the outset, that 1,830 days are equated with five solar years, with 62 lunar months (synodic revolutions of the moon), with 67 nakṣatra months (sidereal revolutions of the moon). The scheme of the Paitām. S. agrees with that found in the Jyot. Ved., and in the Kauṭ. Artha-Ś.; the Yuga being made to commence with Māgha *śukla* 1, with the moon (and the sun) at the beginning of the nakṣatra Dhaniṣṭhā., this being the moment of the Winter Solstice. A different starting point is provided in the Jaina Sūrya Prajñapti, viz. Śrāvaṇa *kṛṣṇa* 1, with the moon at the beginning of nakṣatra Abhijit (the Sun consequently being in Puṣyā), this being the moment of the Summer Solstice.[1] Another feature distinguishes the exposition of the Yuga in the Sūrya Prajñapti from that in the Jy. V., Pait S., and Kaut. A.-Ś; whereas in these latter works, only 27 nakṣatras of equal extent are adopted, 28 nakṣatras (formed by the addition of Abhijit) of unequal extent are employed in the former. The date of the Sūrya Prajñapti is unknown. But it doubtless belongs to a period anterior to the introduction of Greek astronomy. And, although, it is a distinctively Jaina work, it is not impossible that the scheme of the Yuga as worked out therein was made the basis of a calendar current amongst astronomers in the early centuries of the Christian era.

It will be observed that the Yuga contains 62 lunar months distributed among five solar years. The mode of distribution involves the intercalation of two months. According to the Kaut. A.-Ś.,[2] the Yuga begins with the month Māgha, the first

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1 *J.A.S.B.*, 1880, pp. 107–127, 181–206.

2 divasasya haratyarkaḥ ṣaṣṭibhāgam ṛtau tataḥ
karotyekamahas'chedam tathaivaikaṁ tu candramāḥ
evam ardhatṛtīyānāmabdānām adhimāsakam
grīṣme janayataḥ pūrvam pañcābdānte tu paścimam.

The passage occurs in 'Jyotiṣa' as quoted in Śabdakalpadruma, *s.v. Malamāsa.*

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intercalary month comes in the *grīṣma* season after the 30th lunar month, i.e. after Āṣāḍha and would hence be properly called 'the second Āṣāḍha'; while the second intercalary month comes at the close of the five-yearly period, i.e. after Pauṣa, and would hence be properly called 'the second Pauṣa'. According to the S. P., the Yuga beginning with the month Śrāvaṇa, the first intercalary month would similarly come after the 30th lunar month from Śrāvaṇa, i.e. after Pauṣa and would be fitly termed 'the second Pauṣa', while the second intercalary month at the end of the Yuga, i.e. after Āṣāḍha would be fitly termed 'the second Āṣāḍha'. Thus, in both schemes, the only intercalary months are Āṣāḍha and Pauṣa.[1]

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[1] Cf. Thibaut in *J.A.S.B.*, 1880, p 112-3. The method of intercalation is not actually set forth in detail in the S.P. but is inferred to have been as stated here on the evidence of the Kauṭilīya. Cf. Fleet in J.R.A.S., 1912, pp. 704-5.

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Modern Tibetan Phonetics.

With special reference to the Dialect of Central Tibet.

By Georges de Roerich.

The vast elevated country of Tibet is intersected into numerous deep valleys, separated from each other by mighty mountain ranges sometimes difficult of access. The forbidding character of the country, its bleak uplands of the north, bare wind-swept mountain sides, and mighty snow ranges, witnesses of centuries of evolution, made a lasting and powerful imprint on the hillmen of Tibet, their culture and language. The region between the upper course of the Yangtse and the Huang ho in North-West China is said to have been the original home of the Tibeto-Chinese race. The forefathers of modern Tibetans invaded the country from the North-East. The high table-lands of Koko-nor (about 10,000 ft.), and the surrounding mountain country afforded sufficient grazing for the moving hordes, and their cattle. It is from this gigantic 'place d'armes' that the hordes of ancient Tibetans, displaced by some other mighty human avalanche, had been forced to seek new pasture grounds, descending the river valleys of Eastern Tibet into Khams and the South-Eastern corner of the country. Eastern Tibet is a highly intersected mountain country, and affords but little opportunity for cattle-breeding and nomad life in general. The character of the country forced the raw nomads to take up agriculture, and to settle along the fertile river valleys. From here some of the newcomers moved up the stream of the Brahmaputra, and settled in the fertile loess-covered valleys of Central Tibet, such as the Kyi-chu, Nyang-chu, and the Yalung.

Another body of the invaders moving from the Koko-nor region across the northern uplands, struck the mighty barrier of the Nyen-chen Thang La, and was forced to turn westwards along the northern slopes of the Transhimālayas south of the Great Lakes, searching for an easy passage across the mountains into the basin of the Tsang-po or Brahmaputra. The great pilgrim route from Nag-chu and Nam-ru to the Kailāsa mountains probably represents an ancient migration route. I hope to discuss in a separate article the question of this route, and the curious megalithic monuments that are found all along its length.

The valleys suited for cultivation in Central and Southern Tibet, and some of the fertile wooded valleys in the south-east of the country, have been the birth-places of Tibetan culture.

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Here a population of sedentary tribes created the theocratic culture of Tibet, moulded from the rich heritage of cultural achievements inherited from China, and India. Here also the pious efforts of many of the translators of sacred scriptures of Buddhism, gave a definite form to the written idiom of Tibet, which still remains the Latin of Buddhist Central Asia. The tribes, who populated these valleys, through many of which flow the mightiest streams of Asia, speak a variety of dialects sprung from a common root represented by the vast treasury of the written language codified for posterity by the remarkable efforts of a band of Indian and native scholars. This stupendous work started in the second half of the VIIth century A.D. has been crowned with full success, for it succeeded in creating from the raw speech of the nomads a written idiom subtle enough to render the abstruse concepts of Buddhist thought. The difficulties of intercommunication between the different valleys, and the absence of any levelling influence on the many local dialects, which could be exercised by a powerful seat of civilization, produced the great diversity of spoken idioms. The written language into which the Buddhist Canon has been translated, Tibetan in words, and Sanskrit in syntax, has always been a heritage of the literary class. The popular language continued to develop on national lines, creating a written language of its own, widely different from the language of the Känǰür and Tänǰür.

The deep cut valleys of Central and South-Eastern Tibet border on the north and north-east on a large belt of elevated pasture lands or "ḍok" which stretches itself across the whole of northern Tibet from the Kansu border to the frontiers of Ladak in the west. Here a scanty population of nomad tribes the Nya-rong was, the Go-logs, Pa-nags, the Hor-pas, and Chang-pas, have preserved the archaic forms of Tibetan speech. The wind and gale-swept dreary uplands, with their scanty nomad encampments of lugubrious black felt tents still preserve the atmosphere of an early migratory age. A thorough study of these tribes from the point of view of ethnology, archaeology, and linguistics, would undoubtedly reveal a good many important data, and complete the picture of early migrations in Innermost Asia.

It is difficult to speak at present about the evolution of Tibetan dialects, because of an almost complete absence of monographic studies of single dialects. The isolated state of the country, and the century-old policy of excluding all foreigners, prevented the linguist from entering the country, and to study and record its living forms of speech. Such great work in studying spoken dialects of China, and reconstructing the phonetic structure of ancient Chinese, as performed by such masters as Pelliot, Karlgren, and H. Maspero, and the recording and description of modern Mongal dialects performed by such scholars

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as Rudnev, Ramstedt, and Vladimircov, is lacking almost completely in the domain of Tibetan Philology. The study of Tibetan was made necessary by the almost complete absence of Sanskrit originals of Buddhist scriptures, and all efforts were directed to the study of the written language. This phase of study has been brilliantly inaugurated by the self-denying work of the great Hungarian scholar, Alexander Csoma de Kōrōs, the greatest name on the Tibetan path. The study of modern idioms remained in oblivion until the second half of the last century, when appeared the meritorious efforts of the Rev. Jäschke, embodied in the introduction to his Tibetan-English Dictionary, and in several articles published in the Journal of the Asiatic Society of Bengal, and the Zeitschrift d. Deutschen Morgenländischen Gesellschaft, and the pioneer work of the late Professor August Conrady on the Comparative Grammar of the Indo-Chinese Family of Languages. Since the beginning of this century learned articles by Dr. A. H. Francke, of the Moravian Mission, on the dialects of Ladak, and Tibetan phonetics in general, the suggestive articles of Dr. B. Laufer, always full of precious documentation, on the phonetic structure of ancient Tibetan (IXth A.D.), and numerous grammars of spoken Tibetan, among which the Grammar of Colloquial Tibetan by Sir Charles Bell (Calcutta, 1919), and the "Tibetan Manual" by Henderson stand foremost, have touched to some extent the virgin field of Modern Tibetan phonetics. The monumental Linguistic Survey of India by Sir George Grierson contains in Vol. III, Part 1, descriptions of phonetic and morphological structure of various western and southern Tibetan dialects, including the Central Tibetan, and even a brief sketch of the Khams dialect.

Monographical studies of the principal dialects, such as the Lhasa dialect, which presents the greatest number of difficulties to the ear of the student, the Khams dialect, the Amdo dialect, and one of the archaic nomad dialects, should be laid at the foundation of a Linguistic Survey of Tibet. Naturally the time when such a work could be adequately fulfilled is still far off, and we have to satisfy ourselves with the existing meagre evidence furnished by the accounts of different travellers who explored the country. Only on the completion of such monographic studies, shall we be able to draw conclusions about the ancient state of the language.

My recent stay in Tibet, and continuous intercourse with Tibetans from various parts of the country for the past five years, gave me ample opportunity to study the spoken idiom of modern Tibetan. I propose here to make a brief sketch of the phonetic structure of modern Tibetan as spoken in the Central Provinces of Ü and Tsang, making some references to the phonetic structure of ancient Tibetan (the language of the

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VIIth and IXth centuries A.D. attested by native grammarians), and the peculiarities of local pronunciations in different dialects.

The whole country can be conveniently divided into five linguistic areas:—

I.—Dialects of Western Tibet. (Ladakī, Lahul, and the archaic dialects of Baltistān and Purig). The so called སྟོད་སྐད, Tö-ke is the dialect of the སྟོད་མངའ་རིས་སྐོར་གསུམ Tö Ṅa-ri Kor-sum Province, and represents an interconnecting link between the dialects of the far west, and those of the Central Provinces of Tibet Proper.

This western group of dialects is by far the best known, except for the dialect of Tö.

II.—Dialects of Central Tibet. (The Lhasa dialect or དབུས་སྐད, Ü̈-ke, with a sub-dialect spoken in the valley of the Pon-chu, and the Tsang dialect) The Lhasa dialect has been described in numerous grammars of which the best are by Sir Charles Bell, and Mr. Henderson. The Tsang dialect is still little known, although a good many Europeans have lately visited Tashi-lhunpo and the Province. The differences between the Ü̈ dialect and the Tsang dialect is more in vocabulary, than in phonetics. The Tsang dialect is richer in literary expressions. Ex. the pronoun བདག, bdag, pronounced 'dak' is commonly used in the Tsang dialect, whereas in the Ü̈ dialect ང་, ŋa is used instead of it. The Tsang dialect uses འུ་ཅག, 'u-čag for the Lhasa ང་ཚོ, ŋa-ʦho, pronounced ŋaṇ-ʦʰo "we".

III.—Dialects of Southern Tibet. (The dialect of To-mo or Chumbi Valley, and the various Himālayan dialects of Tibetan stock).

The group of dialects has been described in the Linguistic Survey of India, Vol. III, Part 1.

IV.—Dialects of Eastern and South-Eastern Tibet. (The dialect of Khams / the region round Chamdo /, the dialect of Amdo-Derge, and dialects of Kong-po, Po-yul, and the ʦha-rong).

The dialects belonging to this group are almost completely unknown. In Vol. III, Part 1, of the Linguistic Survey of India is found a brief sketch of the Khams dialect. Rev. Jäschke in the phonetic table appended to the Introduction of his Tibetan-English Dictionary has given the pronunciations of an Eastern Tibetan dialect without specifying it. W. Rockhill in his "The Land of the Lamas" (New York, 1891) has

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given a short phonetic table of different pronunciations according to Eastern and Central Tibetan dialects. (Amdo, Pa-nag, Li-thang and Ts̈ha-rong). The Dictionaire Tibétain-Latin-Français by Roman Catholic missionaries published in 1899 at Hongkong contains a number of words and expressions used in these dialects.

V.—The archaic nomad dialects, consisting of the dialect of Nya-rong, the dialect of Go-log with the sub-dialects of the Pa-nags, the dialect of the Hor-pas, and the dialect of the Chang-pas, the northerners, spoken in the vast region from Nam-ru in the north-east to far into the Tö Ña-ri Kor-sum Province where it imperceptibly merges into the dialect of Tö. The Hor dialect or Hor-ke can be divided into two sub-dialects, the sub-dialect of the Hor-pas north of the Thang La Range, and the sub-dialect of the Hor-pas south of the Thang La, (the five tribes of Ts̈e-mar, Atak-Thomi, Atak-Memar, Kömora, and Páòro). This last one is strongly tinted by the Central Tibetan dialect. The Hor dialect preserved the pronunciation of certain prefixes. the voiced pronunciation of ancient voiced, and even the voiced pronunciation of some of the unvoiced. All the nomad dialects have as their common characteristic the pronunciation of certain prefixes. The treatment of these prefixes varies according to dialects: ཟློག་, zlog: Nya-rong and Go-log: zăˊ-log; Hor: z^a-log; Po-yul and Kong-po: ḍok; Lh. ḍo^k (But in ལམ་ཟློག་ lam-zlog, pronounced lam-lok, "wrong ways" or "heretical doctrines.")

ཟླ་བ, Nya-rong and Go-log: zăˊ-la-wa; la-wa; za-wa; Hor, of Thang La: za-wa; Hor of Nag-chu-ka: ḍa-wa; Po-yul and Kong-po: ḍa-wa; Khams; ḍa-wa; Lhasa: ḍa-wa, "month."

རྫོགས་, rǰogs, "finished", Pa-nag and Go-log: rǰog, Lhasa: ǰo^k.

འགྲོ་བ, ('gro-ba) to go; Pa-nag: ǰ^{r}o-wa; Hor: ḍo-wa; Lhasa: ḍo-wa.

དུས, "time", Pa-nag and Go-log: dū; Hor: dū; Lhasa: tü.

གཞན་པ, gšan-pa, "another," Pa-nag and Go-log: žan-pa; Hor: žem-pa; Lhasa: šem-pa and šē-pa. (A peculiarity of the Pa-nag dialect is the aspirate pronunciation of the initial དཔ, dp--. Ex. དཔུང་, dpuṅ, "army," Pa-nag: huŋ; Hor: puŋ; Lhasa: puŋ.

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དཔལ, dpal, "glory", Pa-nag: ɦal: Hor; pal; Lhasa: pē.

A glance at this table of Tibetan Linguistic Areas will suffice to show that the most archaic dialects are found on the outer border of the country in distant mountain valleys, or on uplands difficult of access, and distant from any important and frequented trade-route. It is well known that the Lhasa dialect is the most important dialect of the country. It is the language of the only densely populated district of Tibet, the language of the capital, the language of Tibetan officialdom, and the every day idiom of the learned class. It is understood almost everywhere in Tibet, and in some places even supersedes the local dialects. Should the Lhasa Government have succeeded in establishing a strong grip over the country, the Lhasa dialect would have undoubtedly become the language of the whole country. It is the most evolved dialect of all the Tibetan dialects rapidly moving to a state of things when the tone and position in a sentence will determine the meaning of words. Throughout the present paper the dialect is referred to as Modern Central Tibetan.

The dialect has six fundamental characteristics:—

(1) The loss of all prefixes and suffixes.

(2) The palatalization of vowels and consonants.

(3) The change of all voiced consonants into unvoiced of corresponding class, and the preservation of voiced after prefixes.

(4) The loss of final dental nasal, and the nasalization of the preceding vowel.

(5) The simplifying of compound consonants changing them into domal dentals, and palatal affricates.

(6) The important part played by the tone or acoustic pitch.

I shall describe the phonetic peculiarities of the Modern Central Tibetan under the above six headings.

The table of sounds of the modern Tibetan is as follows: It will be noticed, that the number of letters in the alphabet, reproducing the language of the VII–IXth century A.D., does not correspond to the number of actually existing sounds in Modern Central Tibetan:

ཨ, 'a' is a low-back-wide vowel as in the Italian word "padre."

According to native Tibetan Grammarians there is no separate sound 'a,' it being inherent in each of the sounds of the Tibetan alphabet.

ā, a corresponding long.

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ེ, 'e' is a high-mid-front vowel. ē corresponding long.

ོ, 'o' is a mid-back-wide-round.

ི, 'i' is a high front vowel.

ུ, 'u' is a high-back-wide-round vowel; ū is the corresponding long. Palatalized vowels: æ, English "man," ö, ö, ü (I.P.A y /high front vowel, pronounced like German ü/). Corresponding long vowels: ǣ, ȫ, ǖ. Nasalized vowels: æ̃, ẽ, õ, ũ, ĩ. Note that in Modern Central Tibetan all nasalized vowels are long.

There exist also in some of the archaic nomad dialects short or irrational vowels, written by me ᵃ and ᵉ, which are found after pronounced prefixes, and sometimes at the end of words.

Diphthongs: eⁱ, öⁱ, üⁱ, the second element of the diphthong is always short, and the first element is palatalized, except 'e.'

The Modern Central Tibetan possesses the following consonants. The vowel 'a' is said to be inherent in every consonant:—

ཀ, k unvoiced velar. Ex. ཀུན་ཏུ, kun-tu, "all", pronounced kŭ̄-tu—, kŭn-tu.

k—The same softened before 'e' and 'i.'

ཁ, kʰ, the same slightly aspirated. Ex. ཁྱད, khyad, "difference," pronounced kʰʏe.

kh, the same aspirated strongly. Ex. ཁོང་, khong, "he," pronounced khoŋ.

ག, g voiced velar. Ex. དགུ, dgu, "nine," pronounced gu.

g, the same softened before the vowels 'e' and 'i.' Ex. གིས, gis, particle of the instrumental case, pronounced gī.

ད, t, unvoiced inter-dental.

ཐ, tʰ, the same slightly aspirated. Ex. ཐར་བ, tharba, "to be saved," tʰar-wa.

th, the same aspirated strongly. Ex. མཐོང་བ, mthong-

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ba, "to see," pronounced thoŋ-wa.
ṭ unvoiced domal.* ṭʰ the same slightly aspirated.

ད, d inter-dental voiced.

ḍ indistinct voiced dental, found after prefixes. Ex. འདོད་པ, 'doel-pa, pronounced ḍō-pa.

ḍ voiced domal. Ex. ཟླ་བ, zla-ba, "month", pronounced ḍa-wa.

ཅ, č affricate front-palatal unvoiced.

ཆ, čʰ the same slightly aspirated. Ex. ཆུ, čhu, "water", pronounced čʰu.

ཇ, ǰ palatal affricate voiced (I.P.A. ʤ) Ex. མཇལ་བ, mǰal-ba, "to meet", pronounced ǰē-wa.

ཙ, ʦ unvoiced dental affricate. Ex. རྩི་བ, rʦi-ba, "to count", pronounced ʦi-wa.

ཚ, ʦʰ(a) the same slightly aspirated. Ex. མཚན, mʦhan, "name, sign", pronounced ʦʰæ̃.

ʦh, the same aspirated strongly. Ex. ཚྭ, ʦhva, salt, pronounced ʦhā.

ཛ, ʤ voiced dental corresponding to ʦ. Somewhat like the Russian nadʤór. Ex. འཛིང་རྩ, 'ʤing-ra, "stone-wall," pronounced ʤiŋ-ra

པ, p unvoiced bilabial.

ཕ, pʰ the same slightly aspirated. Ex. ཕུར་བུ, phur-bu, "magic dagger", pronounced pʰur-bu.

ph the same aspirated strongly. Ex. ཕུང་པོ, phung-po, "skandha", pronounced phuŋ-po.

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* It will be noticed that I use "domal" for cerebral. I do in accordance to the suggestion put forward by Professor Ch. R. Lanman in his illuminating article "Sanskrit mutes called mūrdhaŋya that is domal", Festgabe Kaegi, Zurich, 1919, pp 93-101.

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བ, b voiced bilabial. In Modern Central Tibetan found only after prefixes. Ex. འབུམ, 'bum, "100,000", pronounced bum.

b̥, indistinct voiced bilabial. Exp. བ, ba, "cow," pronounced b̥a.

ན, n alveolar nasal.

ང, ŋ (a) velar nasal, like English "bring." At the beginning of words it has a peculiar fricative pronunciation. Ex. ང, ŋa, "I", pronounced ŋà.

ɲ palatal nasal, like Spanish ñ.

མ, m bilabial nasal.

ས, s, dental sibilant, like English "son."

ཟ, s, unvoiced alveolar sibilant, the modern unvoiced pronunciation of the ancient alveolar voiced spirant z.

ཤ, š, palatal sibilant, like English sh. An ancient ž.

ཇ, ʃ, palatal sibilant made with the front of the tongue.

ཧ, ɦ, voiced glottal fricative. Ex. ཧ་ཅང, ha-čang, "very," pronounced ɦa-čaŋ.

ཡ, ǐ, semi-vowel or consonantal ǐ, like Russian ja.

ཝ, ཨྭ, w bilabial semi-vowel

ར, r, front palatal voiced

ལ, l, "clear l".

འ, vowel support.

Compound consonants in Modern Central Tibetan. The seven consonants with a subjoined semi-vowel ཡ.

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[ཡ་བདྲག་རྣ]

	ཀྱ་	ཁྱ་	གྱ་	པྱ་	ཕྱ་	བྱ་	མྱ།
Transcr.	kya	khya	gya	pya	phya	bya	mya.
Pron.	čĭa	čʰĭa	jĭa	čĭa	čʰĭa	jĭa	ɲa.
			gĭa	ča	čʰa		
							čĭa(ča)

The thirteen consonants with a subjoined 'r'.

[ར་བདྲག་རྣ]

	ཀྲ་	ཁྲ་	གྲ་	ཏྲ་	ཐྲ་	དྲ་	ཧྲ་
Transcr.	kra	khra	gra	tra	thra	dra	hra
Pron.	ṭa	ṭʰa	ḍa	ṭa	ṭʰa	ḍa	ṭa
	ཕྲ་	བྲ་	མྲ་	ཟྲ་	སྲ་	ཤྲ།	
	phra	bra	mra	zra	gra	hra	
	ṭʰa	ḍa	mā	ʃa	sā	ñā.	

The six consonants with a subjoined 'l'.

[ལ་བདྲག་རྣ]

	ཀླ་	གླ་	བླ་	རླ་	སླ་	ཟླ།
Transcr.	kla	gla	bla	rla	sla	zla
Pron.	la	la	la	la	la	ḍa.

The sixteen consonants with a subjoined— ྭ་

[ཝ་ཞབས་བདྲག་པ]

	ཀྭ་	ཁྭ་	གྭ་	ཅྭ་	ཉྭ་	ཏྭ་	དྭ་	ཙྭ་
Transcr.	kva	khva	gva	čva	ñva	tva	dva	tsva
Pron.	kā	kʰā	gā	čā	ɲā	tā	dā	ʦā
	ཚྭ་	ཞྭ་	ཟྭ་	རྭ་	ལྭ་	ཤྭ་	སྭ་	ཧྭ།
	ʦhva	švа	zva	rva	lva	ɕva	sva	hva
	ʦha	šā	sā	rā	lā	ʃā	sā	ñā.

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The twelve consonants with a prefixed 'r'.

[ར་མགོ]

Transcr.	rka	rga	rṅa	rǰa	rña	rta
Pron.	ka	ga	ŋa	ǰa	ŋa	ta
	rda	rna	rba	rma	rtsa	rdza.
	da	na	ba	ma	ʦa	ʣa.

The ten consonants with a prefixed 'l'.

[ལ་མགོ]

Transcr.	lka	lga	lṅa	lča	lǰa	lta	lda	lpa	lba	lha
Pron.	ka	ga	ŋa	ča	ǰa	ta	da	pa	wa	lâ

The eleven consonants with prefixed 's'.

[ས་མགོ]

Transcr.	ska	sga	sṅa	sña	sta	sda
Pron.	ka	ga	ŋa	ŋa	ta	da
	sna	spa	sba	sma	stsa.	
	na	pa	ba	ma	ʦa.	

(1) The loss of prefixes and suffixes.

Under this heading, I shall discuss the treatment of the five prefixed letters g, d, b, m, h ('), and the three superadded letters 'r,' 'l,' and 's.' In the Modern Central Tibetan the prefixed letters are as a rule left unpronounced. Each of the prefixed letters can be followed by a certain number of consonants :—

g is found before č, ň, t, d, n, ʦ, š, z, ya, ç, s.
d is found before k, g, ň, p, b, m.
b is found before k, g, č, ǰ, ñ, t, d, rn, ʦ, ʣ, š, z, rl, ç, s.
m is found before kh, g, ň, čh, ǰ, ñ, th, d, n, ʦh, ʣ.
h is found before kh, g, čh, ǰ, th, d, ph, b, ʦh, ʣ.

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Ex. གཅིག, gčig, "one", pronounced čiᵏ; དངུལ, dṅul, "silver," pronounced ŋü. མཁན་པོ, mkhan-po, "abbot," pronounced khə̃-po.

The consonantal combination དབ, db—has the sound of a semi-vowel "w".

Ex. དབང་, dbaṅ, power, pronouuced waŋ. In case db—is followed by a subjoined 'ya', the last one is only pronounced. Ex. དབྱངས, dbyaṅs, pronounced yaŋ, "tune".

In Modern Central Tibetan the superscribed letters r, l, and s are as a rule unpronounced but the following consonant is affected.

Ex. རྒད་པོ, rgad-po, "old", according to the phonetic usage in Modern Central Tibetan, the word should be pronounced ke-po, but because of the preceding 'r' the following consonant remains voiced, and the word is pronounced ge-po. Cf. རྡོ, rdo, "stone", pronounced do.

When occurring at the beginning of the second syllables of words, the superscribed 'r' is pronounced. Ex. རྡོ་རྗེ, rdorje, "thunderbolt", pronounced dor-ǰe. In the archaic dialects of the nomads རྟ, rta, "horse" is pronounced răta, whereas in Modern Central Tibetan it is pronounced ta. The other two superscribed letters 'l' and 's' are as a rule dropped, except ལྷ, lha, pronounced lʰa, "god".

In the Ladakī dialect an 's' is often prefixed to words which begin with prefixes. Ex. དཔེ་ཆ, dpe-cha, "book," pronounced in Ladakī ˢpe-čʰa;

The Go-log and Pa-nag dialects often prefix an 'r' to words beginning with a prefix. Ex. ལྟ་བ, lta-ba, "to look", pronounced rta-wa. Lh. ta-wa.

སྒོ, sgo, "door", pronounced rgo. Lhasa: go.

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སྐད་, skad, "speech", pronounced rkad. Lhasa: ke.

But, ར་, rta is again pronounced as in Ladakī sta.

The final consonants are as a rule dropped in Modern Central Tibetan, and affect the preceding vowel, its timbre and quantity. I shall speak about them fully under the next paragraph.

Final suffixal 's' is always dropped, and the preceding consonant is treated as if it were a final:

Ex. རྣམས, rnams, pronounced nam; ལུགས་སྲོལ, lugs-srol, "manner, custom", pronounced luᵏ-sō; ལགས་སོ, lags-so, "very well," pronounced lā·so (the suffixal 's' is dropped together with the preceding velar, and the vowel is lengthened).

(2) The palatalization (softening) of vowels and consonants.

The Modern Central Tibetan dialects have until now preserved two pronunciations of words beginning with an ancient velar, followed by a subjoined semi-vowel 'i': a velar and a palatalized.

Ex. the word ཁྱི, khyi, "dog" is pronounced both kʰĭi, and čʰĭi.

ཁྱོད་, khyod,, "you", is both pronounced kʰĭō, and čʰĭō. > čʰö.

བརྒྱད་, brgyad, "eight", is both pronounced gĭæ, and ǰĭæ. In the Modern Central Tibetan one hears oftener gĭæ, whereas in the Khams dialect, which is also strongly subject to palatalization, has ǰĭæ.

རྒྱལ་པོ, rgyal-po, "king", is pronounced both gĭæ-po and ǰĭæ-po. J̌ĭæ-po is the regular pronunciation in the Khams dialect.

In all the above cases the initial velar changed to a corresponding affricate under the influence of the subjoined semi-vowel.

In the above the Modern Central Tibetan forms a good parallel to the Chinese, where ancient velars changed to dental affricates.

Ex. 詰, "investigate" is pronounced ʦʻi in modern Pekinese, but was anciently pronounced kʻi̯ĕt.

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This phenomenon of palatalization of vowel and consonant sounds is common in different degrees to all the Tibetan dialects.

Ex. འདོད་པ, dod-pa, to wish, Nya-rong: död-pa; Khams : dō-pa ; Lhasa : ḍō-pa.

The palatalization of vowels is caused by the loss of final consonants in Modern Central Tibetan. Just as in Chinese, the vowel of a Tibetan syllable ending in a consonant is "conscious" of the consonant following it.

There are ten final consonants in Modern Central Tibetan most of which are lost in the modern idiom.

g- at the end of a word has a hardly perceptible pronunciation of a 'k'. Ex. ལུག, lug, sheep, pronounced lu^{k}.

ŋ- is the most difficult sound of Modern Central Tibetan. At the beginning of a word it sounds as a strong nasal velar, a kind of nasal fricative. When pronounced, the tongue occupies a middle position in the oral cavity, without touching either the teeth, or the palate. The sound is then pronounced with a strong expiration.

Ex. ང་, ŋa, I ; ལྔ་, lŋa, five, pronounced ŋà.

When at the end of words it has the soundo f -ng in the English 'bring'.

Ex. མིང་, ming, name, pronounced miŋ.

d, l, s are dropped, and the preceding vowels palatalized and lengthened. a$\overset{ö}{\underset{ē}{\times}}$; u > ǖ ; o > ō

Ex. བདུད, bdud, devil, pronounced ḍǖ (the prefixed voiced bilabial is dropped but the following dental is left voiced).

གསོལ་བ, gsol-ba, to pray, pronounced sō-wa.

སྤོས, spos, incense, pronounced pō.

n- the preceding vowel is palatalized, nasalized, and lengthened.

Final dental nasal 'n' is changed to a bilabial nasal 'm', or dropped and the preceding vowel is palatalized, nasalized, and lengthened :

Ex. ལེན་པ, len-pa, to take, pronounced lem-pa, or more often l$\overset{ö}{\underset{ē}{\times}}$.pa.

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བདུན, bdun, seven, pronounced dū.

བློན་ཆེན, blon-čhen, minister, pronounced lȍ-čʰɛ̄.

d, m, r- these three finals do not affect the pronunciation of the preceding vowel, and are pronounced.

ཚབ, ʦab, substitute, pronounced ʦap.

སྒམ, sgam, box, pronounced gam.

སྨར, mar, butter, pronounced mar, sometimes one hears má. (high rising tone)

བ, ba as an agentive particle after vowels and liquids 'r' and 'l' has the sound of an English semi-vowel w.

Ex. འགྲོ་བ, 'gro-ba, to go, pronounced ḍo-wa.

གཏོར་བ, gtor-ba, to spread, pronounced tor-wa.

གསོལ་བ, gsol-ba, to pray, pronounced sȍ-wa.

འ, h̲. It is difficult to determine the true nature of this sound.[1] I shall note here several of its pronunciations. At the beginning of a word with an initial vowel it is pronounced as a semi-vowel 'w'.

Ex. འུག་པ, 'ug-pa, owl, pronounced u̯uk-pa.

When standing at the end of a word it lengthens the preceding vowel.

Ex. བཀའ, bkah̲, order, pronounced kā; ནམ་མཁའ, nam-mkhah̲, sky, pronounced nam-kʰā.

At the beginning of the second syllable of a word, it has often a nasal pronunciation. Ex. བཀའ་འགྱུར, bkah̲-'gyur, pronounced Kɐ̃n-ǰür.

As a prefix it often interchanges with the bilabial nasal 'm'

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[1] See description given by Dr. J. van Manen, reproduced in Schrader's Transcription and Explanation of the Siamese Alphabet, Asia Major, I, p. 56.

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Ex. འཐུན་པ་མཐུན་པ། འགོ་མགོ། འཛིན་པ་མཛིན་པ།

'thun-pa—mthun-pa; 'go'—mgo; 'dzin-pa'—mdzin-pa;
Further examples of nasal pronunciation of 'h̲':

ཞལ་འདེབས, šal-'debs, offering, pronounced šæn-dep* > šæ̃-dep.

ཞབས་འདྲེན, šabs-'dren, degradation, pronounced šam-ḍæ̃

(in the first word, the final 'l' of the first syllable is dropped, and the initial 'h̲' is nasalized, and the following dental under the influence of the preceding nasal dental remains voiced; in the second case the final 'bs' is dropped, and the 'h̲' of the second syllable nasalized, becoming nasal bilabial under the influence of the preceding bilabial 'b'). The dropping of final consonants has produced homophonous syllables, and what is worse of similar tone. In order to distinguish between them the Tibetan has adopted, similar to the Chinese, a certain mode of expression in which two words of similar meaning or related meaning are grouped together, thus explaining each other. Dr. B. Karlgren has called such compounds "synonym compounds". Ex. ན་ཙྪ, na-ʦha, illness, pronounced na-ʦha, where 'na' means "illness," and ʦha-wa "fever, or illness in general". The word 'na' if used alone, could be easily mistaken for a similarly pronounced word སྣ, sna, nose, pronounced na. The word སྐུ་འདྲ, kün-ḍa "image, figure," is also properly speaking a synonym compound, for both syllables have the same meaning "image, form, shape." The frequently occurring honorific expression ཐུགས་སེམས, thugs-sems, 'thought', pronounced thu-sem, belongs to the same class of compounds, as both words have the same meaning "mind, thought, opinion". Some words of related meaning are grouped together, as for example ཞོ་ཁྲལ, ço-khral, custom duty, pronounced ʃo-ʈʰe, where 'ʃo' means dice, or any game in which money is involved, and 'ʈʰe' is the proper word for "tax."

Compare the Chinese expression 意思, i-sï, "meaning," in which both words have the same meaning.

(3) The change of voiced consonants to unvoiced of a corresponding class, and the retaining of voiced after prefixes.

A comparative study of living Tibetan dialects reveals the important fact that in ancient Tibetan the voiced were pronounced, and that many present unvoiced were ancient voiced.

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The Modern Central Tibetan dialects have lost all voiced, which are pronounced unvoiced, except when a voiced is preceded by a prefix, in which case it preserves its voiced pronunciation. In the archaic nomad dialects all ancient voiced are still pronounced as such, and even some of the ancient unvoiced under the influence of the prefix become voiced.

Ex. བསོ་བ, gso-ba, to make, pronounced Lhasa: so-wa, but in the Hor dialect it is pronounced zo-wa, with an alveolar voiced spirant.

The name for Tibetans བོད་པ, Bod-pa is pronounced bod-pa by the Hor-pas north of the Thang La, and the Nya-rong-was, but the Hor-pas south of the Thang La pronounce it already bo-pa, and sometimes pó-pa, the last form has been taken over from the neighbouring Modern Central Tibetan dialects, and has preserved its pronunciation. The Amdo pronunciation *wo-pa is wholly anomalous. It would be interesting to study this semi-vowel pronunciation of an initial bilabial voiced. Rev. Jäschke in the phonetic table of Tibetan dialects appended to the introduction of his dictionary gives wo-mo as the pronunciation of བུ་མོ, bu-mo, girl, Lhasa: pu-mo, in the Khams dialect. It is a great pity he did not specify the dialect more fully. Was it the dialect of Khams that is the mountain country round Chamdo, or some other dialect of Eastern Tibet? From the pronunciation given in the table it sounds as Amdo.

That voiced were pronounced in ancient Tibetan is proved by Tibetan transcriptions of Chinese words. Ex. the palatal sibilant ཞ, ž is pronounced unvoiced in Modern Central Tibetan, but voiced in the archaic nomad dialects. བཞི, bži, four, is pronounced ši in Modern Central Tibetan, and ži in the Hor dialect and the Ladakī. We have Tibetan transcriptions of Chinese words to prove that such has been the case in ancient times. The modern Chinese huo-šang, 和尚, represents an ancient *ɣūa-ʒi̯aṅ, the second syllable beginning with a sonant fricative. Now the usual Tibetan transcription of the word is ཧྭ་ཤང་, hva-šaṅ, pronounced ɦā-šaŋ, which corresponds to an ancient *ɦʷa-žaṅ, which is a fairly good reproduction of the Chinese original.

The disappearance of ancient voiced has resulted in a curious phenomenon: the use of perfect stems in the present

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tense. In Modern Central Tibetan one says: བཀག་གི་འདུག, bkag-gi 'dug, "he hinders," pronounced ka-gi du, and not འགེགས་ཀྱི་འདུག, 'gegs-kyi 'dug, which would be the proper form to use. The cause for such a phenomenon is easily found. We know already the tendency of the language to pronounce initial consonants as unvoiced, unless they are preceded by a prefix. Now the perfect stems of Tibetan verbs often have initial unvoiced, whereas the present stems have voiced initials.

Ex. འགེབས་པ, 'gebs-pa, to cover, pf. bkab, pronounced kap.

འགེལ་བ, 'gel-ba, to load, pf. bkal, pronounced in Mod. C. Tibetan: kal, kē.

འདེབས་པ, 'debs-pa, to establish, pf. btab, pronounced tap.

འདོན་པ, 'don-pa, to expel, pf. bton, pronounced tō̃.

འབུལ་བ, 'bul-ba, to present, pf. phul, pronounced pʰū̃.

འཇོག་པ, 'jog-pa, to place, pf. bšag, pronounced šá with a rising tone. In colloquial only the last form is used.

འབེབས་པ, 'bebs-pa, to cast down, pf phab, pronounced pʰap.

The general tendency of the language has influenced the use of verbal forms in the modern idiom.

(4) The loss of final dental nasal, and the nasalization of the preceding vowel.

This phenomenon is especially characteristic of the Modern Central Tibetan. I had the occasion to refer to it before. The final dental nasal ན, n is dropped, and the preceding vowel nasalized and lengthened. In case the preceding vowel is 'o' or 'n', it is palatalized, and becomes 'ö' and 'ü' before receiving the nasalization.

Ex. སྐྱོན, skyon, imperfection, pronounced čị̄ō̃.

སེམས་ཅན, sems-čan, living being, pronounced sem-čē̃.

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དོན་ཆེན, don-čhen, of high importance, pronounced tŏ-čʰĕ.

དགེ་རྒན, dge-rgan, teacher, pronounced ge-gə̆.

(5) The simplifying of compound consonants, changing them into domal dentals, and palatal affricates.

A striking feature of the Modern Central Tibetan is that it does not suffer consonantal groups or several consonants together at the beginning of words. The Tibetan orthography still represents the ancient state of things (VII–IXth A.D.), when Tibetan was a dissyllabic language.

With the gradual disappearance of prefixes in the spoken language, it became quite impossible to articulate compound consonants, that is several consonants at the beginning of words.

Compound consonants with a subjoined 'r' gradually changed into domal dentals, and those with a subjoined semi-vowel 'i' became palatal affricates.

ག, gra > Pa-nag and Khams: ǰʳa > Lhasa ḍʳa > ḍa > ṭa.

ཀ, kra > Pa-nag and Khams: čʳa > Lhasa: ṭʳa > ṭa.

ག, gra
ད, dra
བ, bra
} ḍʳa > ḍa > ṭa.

ཀ, kra
པ, pra
} ṭʳa > ṭa.

ཁ, khra
ཕ, phra
} ṭʰʳa > ṭʰa.

Ex. འགྲོ་བ, 'gro-ba, to go, pronounced ḍo-wa, sometimes ḍʳo-wa.

དྲག་པོ, drag-po, fierce, pronounced ḍak-po, sometimes ḍʳak-po.

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སྒྲུབ, grub, pf. of 'grub-pa, to accomplish, pronounced ṭup or ṭ^{r}up.

འཁྲིད་པ, 'khrid-pa, to lead, pronounced ṭ^{h}i-pa.

ཕྲག, phrag, ravine, pronounced ṭ^{h}ak, ṭ^{hr}ak.

It will be noticed from the above that sometimes an 'r' is sounded after the domal dental. It shows that the process of transformation of compound consonants into simple domal dentals is not yet finished, and this results in a certain fluctuation of pronunciation.

ཀྱ, pya > ča Ex. སྤྱོད, spyod, conduct, pronounced čö.

ཕྱ, phya > č^{h}a. Ex. ཕྱག, phyag, hand, pronounced č^{h}ak.

བྱ, bya > ǰa > ča. Ex. བྱམས་པ, byams-pa, Maitreya, pronounced čam-pa.[1]

The native Tibetan scholars say that 'bya' has the sound of ཇ, ǰ, but ǰ in modern pronunciation is pronounced similarly to ཅ, č.

Some of the words with initial compound consonants have an irregular pronunciation, very often they are borrowings from other dialects, and preserved their dialectical pronunciation.

Ex. སྦྲ་ནག, sbra-nag, "black felt tent of the nomads" is pronounced bā-nag in the nomad dialects. In the Central Tibetan we should expect a pronunciation ḍa-na^{k}, but it is usually pronounced ba-na^{k}, because the word has been borrowed from the nomads, and has preserved its pronunciation of the nomadic north. The autochthon word for tent in Modern Central Tibetan is གུར, gur, pronounced kur.

(6) The tone system in Modern Central Tibetan.

It is not my object to give here an exhaustive study of the

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1 But འབྱམ་པ་ 'byam-pa, to flow over, because of the prefixed 'h' is pronounced ǰam-pa.

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Tibetan tone system, its ancient aspect, and the differences existing between the ancient Tibetan, and the Modern spoken Tibetan. Such a study necessitates a thorough comparative study of all the existing dialects from the point of view of their respective tonetics, and the settling of the question of the influence exercised by the prefixes and suffixes on the tone My object is to give a descriptive account of the tone system in Modern Central Tibetan, as spoken in the provinces of Ü and Tsang.

A tone is essentially an acoustic pitch inherent in the word. Of all the Tibetan dialects, the Modern Central Tibetan has the fullest tone system, which plays a highly important part in it. In every Tibetan word there is inherent a certain tone, and words otherwise phonetically identical can be distinguished by their different tones. The tone system of the Tibetan language must have undergone considerable changes in the course of time, and the modern spoken dialects have a varying number of tones. It is well known that tones are often due to the disappearance of prefixes. The ancient Tibetan has been an essentially dissyllabic language, most of its words being composed of a prefix and an accented root. The unaccented prefix with a very short vowel (irrational) gradually wore away, and the accent on the word, which became a monosyllable, gradually changed into a melody or tone, indicating the former existence of the disappeared prefix. In those dialects in which the prefixes are still used, there is less necessity for tones. Such idioms, as the Western Tibetan dialects, the archaic nomad dialects of the North-East, and some of the East Tibetan dialects, which have preserved the pronunciation of some of the prefixes, have almost no tone system altogether, on the contrary those of Central Tibet, and some of the South-eastern Dialects (Kongpo, Po-yul), which have lost the pronunciation of prefixes, developed a tone system, essential for the correct understanding of a Tibetan sentence. To transcribe the Modern Central Tibetan phonetically without indicating the tone or acoustic pitch will render the language utterly unintelligible.

Different scholars proposed different schemes of Tibetan tone system. Rev. Jäschke distinguished between two tones, the high and the deep one. The high tone, according to him, is found in words beginning with soft consonants preceded by a prefix or else beginning with a hard consonant, the second was found in words beginning with uncompounded soft consonants in the written language. Rev. Jäschke, who did much excellent pioneer work in the field of Tibetan phonetics, laboured in Western Tibet, and his scheme of Tibetan tones does not cover well the system of tones existing in Modern Central Tibetan.

Rev. Graham Sandberg, whose object of study has been the Modern Central Tibetan, distinguished three tones:

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The high pitched གསེར, gser, nail, pron. ser.

The medial གསེར, gser, gold, pron. ser.

Low resonant ཟེར, zer, said, pron. ser.

Cf. Rev. Graham Sandberg, Handbook of Colloquial Tibetan, Calcutta, 1894, p. 13.

Professor August Conrady in his "Eine Indochniesische Causative-Denominative Bildung", 1896, pp. 91-103, followed the above system with slight modifications.

Rev. E. Amundsen in his "Primer of Standard Tibetan", has proposed a scheme of six tones, which number can, however, be reduced to four, as in two cases the difference depends only on the length of the tone, and not on its musical height.

Tone 1. High pitched; often nasal, and short as if butted against something.

Tone 2. High like Tone 1, but long.

Tone 3. Medium pitch and short like tone 1.

Tone 4. Medium pitch and long.

Tone 5. Curved tone; deep but gradually raised to medium pitch, like saying "two" in a surprised questioning tone.

Tone 6. Descending long tone.

Rev. E. Amundsen has based his scheme of tones on the classification of ancient Tibetan tones by native grammarians, as found in the Si-tūi Sum-tak (སི་ཏུའི་སུམ་ཅུའོ): ཕོ, pho, high; མ་ཉིན་, ma-niñ, medium; མོ, mo, low; ཇིན་དུ་མོ, çin-tu-mo, very low; མོ་གཅམ, mo-gçam, lowest; མཚན་མེད, mtshan-med, nameless.[1]

This ancient classification does not correspond to the system of tones in the Modern Central Tibetan. I venture to propose a somewhat different scheme, which corresponds well to he modern position of tones in the spoken Central Tibetan.

The Modern Central Tibetan has three tones: the rising tone, the even tone, and the falling tone, each of these tones can in its turn be pronounced in a high pitch and a low pitch, making in all six melodies or tones.

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1 The above terms are alternative designations for the different classes of sounds ||letters||, and have nothing to do with the tones.

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Signs adopted.

1. Rising tone
   - high ″ སེར་པོ, ser-po, yellow, pron. se″-po.
   - low ′ [1] གསལ་པོ, gsal-po, bright, pron. se′-po.

II. Even tone
   - High long = སྲས, sras, son, pron. sē=
   - Low long = ས, sas, instrumental of ས, sa, earth, pron. sē —

I. Falling tone
   - high accented ˋ བསད, bsad, pf. of གསོད་པ, gsod-pa, to kill, pron. seˋ.
   - low abrupt སེད, sed, file, pron. seˋ.

Let us take the syllable ‘ pö ’. If pronounced in the rising tone, it means “ away, off ”, and is written བོས, bos; pron. pō″, as in the sentence ཁོ་བོས་ཕྱིན་པ་རེད, kho bros phyin-pa-red, pronounced khò pō″ čī-pà-rè, “ he went off ”. If pronounced in the high even tone pō, it means, “ incense ”, and is written སྤོས, spos. Finally, if we say in an abrupt falling tone pöˋ, the word will mean “ Tibet ”, and is written བོད, Bod

The syllable ‘ ɲi ’ has several pronounciations :

ཉིད, ñid, self, pronounced in the high rising tone ɲi″.

སྙིགས་པ, sñigs-pa, degenerated, pronounced in the low rising tone ɲi(ᵏ)′-pa.

གཉིས, gñis, two, pronounced in the even tone (high long) ɲi=.

[1] The low rising tone has a tendency to disappear from the language, although still heard in some districts.

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རྙི, rñi, trap, pronounced in the even tone (low long) ɲi−.

གཉིད, gñid, sleep, pronounced in the falling tone (high accented) ɲi˝.

རྙིད་པ, rñid-pa, to fade, pronounced in the abrupt tone ɲi˘.

It can be clearly seen from the above examples that the presence of a prefix or suffix affects the tone of the word, the first accentuates the pronunciation; the second, by changing the timbre and quantity of the preceding vowel, affects the tone.

Ex. ཀ་བ, ka-ba, pillar, a word neither preceded by a prefix, nor followed by a suffix, is pronounced kà-wa with an abrupt falling tone.

སྐ་བ, ska-ba, thick, preceded by the prefix 's', is pronounced ka˝-wa in a high accented falling tone.

བཀའ, bkaḫ,
དཀའ, dkaḫ, } preceded by prefixes, and followed by 'ḫ' (which should be considered here as a suffix) are both pronounced kā¯ with a high high even tone.

བཀག, bkag, pf. of འགེག་པ་, 'gegs-pa, to hinder, pronounced ka″. The word has a prefix, and is therefore pronounced accented with a high pitch, the suffix-g, pronounced as a sharp short ᵏ makes the timbre of the preceding vowel rise, and the word is pronounced with a high rising tone kaᵏ″ > ka″, as in the sentence ལམ་ཀ་བཀག་པ་རེད, lam-ka bkag-pa-red, the road has been blocked, pronounced lam˘-kà ka″-wà-rè (pa is usually pronounced wa in the colloquial language).

It is interesting to note that the above scheme of tones, rising, even, falling, corresponds well to the tone system in the Chinese of the VIth century A.D., which had an even, a rising, a falling, and an abrupt tone, each of the three could be pronounced in a high and low pitch—making in all eight different melodies. The only difference is that in the Tibetan system, the abrupt tone represents a variety of the falling tone.

The tones have considerably reduced the number of homophones in Central Tibetan, yet in rapid speaking, and specially in writing (Tibetan using an alphabet has not the benefits of

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the ideographic scripts of the Chinese in rendering homophonous words; a word unorthographically written often changes completely the meaning of a sentence, and the real sense has to be discovered from the context) mistakes are often made even by Tibetans themselves. In order to remedy the situation the Tibetan language uses synonym compounds, which have been already mentioned in the course of the present paper.

The study of Tibetan compounds will undoubtedly reveal many important facts for the evolution of the language.

In conclusion, I must say, that Tibetan evolves on closely similar lines to the Chinese. The loss of old consonanted groups at the beginning of words; the loss of final consonants (Central Tibetan is not yet through with the process); tendency to replace voiced consonants by corresponding unvoiced; change of initial gutturals to affricates—to mention only a few similarities.

The study of Tibetan is highly important for Sinological studies, for the phonetic transcription of the Tibetan of the VIIth century A.D. created by Thon-mi Sambhoṭa and his colleagues, faithfully preserves all that Chinese has lost, and Modern Central Tibetan shows us a language in the process of evolution towards a goal very similar to the present state of Chinese.

I close the present paper by giving a short Tibetan text in transcription according to the pronunciation of Modern Central Tibetan, and marking the tone of each word.

HILLSIDE,
Darjeeling.
12*th October*, 1928.

GEORGES DE ROERICH.

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The story of Lost Son.

? | བུ་སྐྱོར་བའི་ལོ་རྒྱུས།

མི་ཅིག་གི་བུ་སྐྱོར་ནས་ཡས་འཚོལ་དུ་ཕྱིན་པས། བུ་མ་རྙེད་ནས་ཁོང་རང་གིས་ཡུལ་གཅིག་བརྒྱང་ནས་ནོར་མང་པོ་བསགས་ཏེ་ལོངས་སྤྱོད་ཆེན་པོ་བྱེད་ཀྱི་ཡོད་པའི་དུས་ན། ལན་ཅིག་བུ་དེ་ཡུད་ཙམ་ཅིག་བྱུང་བ་ལ་ཡས་ངོ་ཤེས་ནས། ཡས་ཐབས་བྱས་ཏེ། དང་པོ་རང་ནས་བརྒྱང་ནས་རྒྱལ་པོ་འི་ཚད་པའམ། ཆོ་ག་ཅིག་བྱུང་སྟམ་ནས་བྱོས་ཏེ་འགྲོ་བས། དང་པོ་མ་བརྒྱང་བར་སྐུང་པོ་འི་རྒྱ་ལ་བཞག། དེ་ནས་ཡང་ཚུར་བསྐྱེན་ཏེ་སྐུང་འཕྱག་དུ་བཅུག། བཟའ་ཡང་དུག་བྱིན། དེ་ནས་ཁྱོད་གོ་ཆོད་པར་འདུག་པས་ནང་ལས་གྲིས་བྱས་ནས་ནང་ལ་བཅུག། དེ་ནས་མཇོད་ཀྱི་ལྷེ་མིག་གཏད་དེ་བག་ཕེབས་པར་བྱས་ནས། ཕྱིས་པ་འཆི་བའི་དུས་སུ་ཁེ་དུ་རྣམས་བསགས་ནས། འདི་ངའི་བུ་ཡིན་པ་ལ། སྐྱོར་ནས་ཡུན་རིང་དུ་ལོག་པའི་གཏམ་བྱས་ནས། ད་ང་ཆས་པས་ཁྱེད་ཀྱིས་ང་ལ་རྨེ་ལྡེར་བྱེད་པ་བཞིན་དུ་འདི་ལ་གྲིས་ཤིག་བྱས་ནས། དབང་ཐུག་ལ་དབང་བྱེད་དུ་བཅུག་གོ། དེ་བཞིན་དུ་སྤྲོབ་དོགས་མཁས་པས་སྤྲོབ་མ་ལ་ཡོན་ཏན་བསྟབ་ཡུགས་དང་ པོ་གོ་སྟ་ བ་ ནས་ རིམ་ གྲིས་ འཁྲིད་ ནི་ བརྟན་ པོར་ འགྱུར་ བ་ཡིན་ནོ ॥

[From the དམ་ཚོས་པད་དཀར། Dam-čʻos pad-dkar].

Transcription :

Bu. stor. baḥi. lo. rgyus.

Mi. gčig. gi. bu. stor. nas. phas ʻtshol. du phyin. pas. Bu. ma. rñed. nas. khoṅ. raṅ. gis. yul. gčig. bzuṅ. nas. nor.

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maṅ. po. bsags. te loṅs. spyod. čhen. po. byed. kyin. yod. paḫi. dus. na/ lan. čig. bu. de. yud. tsam. čig. byuṅ. ba. la phas. ṅo. ças. nas/ phas. thabs. byas. te/ daṅ por. raṅ. nas. bzuṅ. na. rgyal. poḫi. čhad. pa'm/ čho. ma. gčig. byuṅ. sñam. nas. bros. te. 'gro. bas/ daṅ. po. ma. bzuṅ bar. spraṅ. poḫi. zla. la. bšag/ de. nas. yaṅ tshur. bsñen. te. sraṅ. 'phyag. tu. bčug/ bzaḫ. yaṅ. drag. tu. byin/ de. nas. khyod. go. čhod. par 'dug. pas. naṅ las. gyis. byas nas. naṅ. la bčug/ de. nas. mdzod kyi. lde. mig. gtad. de. bag. phebs. par. byas. nas/ phyis. pha. 'čhi baḫi. dus. su. ñe du. rnams. bsags. nas/ 'di. ṅaḫi. bu. yin. pa. la/ stor. nas. yun. riṅ. du. lon. paḫi. gtam. byas. nas/ da. ṅa. rgas. pas. khyed. kyis. ṅa. la. ji. ltar. byed. pa. bšin. du. 'di. la. gyis. çig. byas. nas/ dbaṅ. phyug. la. dbaṅ. byed. du. bčug. go/ de. bšin. du. slob. dpon. mkhas. pas. slob. ma. la. yon. tan. bslab. lugs. daṅ. po. go. sla. ba. nas. rim. gyis. khrid. na. brtan. por. 'gyur. ba. yin. no.

The Story of a Lost Son.

| Phonetic transcription |

Pu`-tor″-wei′ lo`-ǰǖ—.

mi`-či$^{k}$-gi- pu` tor″-nē= p^{h}ē- ʈshol′-du- čǐ-- pē-. Pu` ma`-ɲe`-nē= khoŋ`-raŋ`-gi-ǐǖ-- či$^{k}$ suŋ`-nē= nor`-maŋ`-po`sa′-te` loŋ`-čö- č$^{h}$ê`-po- če`-kǐǐ-- ǐö-- pei- tǖ-- na- lē-- či$^{k}$ pu`-te- ǐü^{n}-ʈsam`-či$^{k}$ čuŋ`-wa--la-p^{h}ē- ŋo`-ʃe--nē=, p$^{h}$e- t$^{h}$ap$^{n}$-če--te$^{n}$: "taŋ$^{n}$-po- raŋ`-nē- suŋ^{n}-na- gǐæ--pōi= če`-pa`-am^{n}, č^{h}o^{n}-ma`-či$^{k}$ čuŋ` ɲam`-ne= pō″-te- ḍo`-we-." Taŋ`-po$^{n}$ ma`-suŋ`-war` taŋ^{n}-pöi- ḍa--la- ša′. Te`-nē= ǐaŋ` ʈshur`-ɲē--te= saŋ` č^{h}a^{k} tu- ču^{k}. sā--ǐaŋ` ṭa$^{k}$-tu- čǐ--. Te`-nē- čǐō` ko`-č^{h}ō`-par′ du$^{k}$pe- naŋ`-lē- gǐi- cē--nē= naŋ`-la- ču$^{k}$. Te`-ne- ʤzō`-kǐi- de`-mi` te`-te=pa′-p^{h}ep`-par- čē--nē=. č$^{h}$i--- p$^{h}$a` č^{h}i--wei- tǖ′-su-ɲe`-tu`-nam` sa′-nē=: "Di-ŋēi= pu` ǐǐ-pa--la-, tor″-ne= ǐǖ--riŋ--du- lǒ--pei- tam`-če--nē=, ta` ŋa` ge--pa- kǐē-kǐi- ŋa`-la- čǐ-tar` če--pa` šǐ--du- di=-la- gǐi--ʃi^{k}′ če--nē=, waŋ′-č^{h}u^{k}-la - waŋ′-če--du-ču^{k}-ko=."

Te--šǐ--du- lop`-pǒ- khē--pē- lop`-ma`-la- ǐǒ--tɕ̑ē-lap`-lu^{k} taŋ`-po- ko`-la`-wa`-nē = rim`-kǐi- ṭi--na- tē--po′-ǰüǐ`-wa--ǐǐ--no=.

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Translation.

A father having lost his son, set out to search for him Unable to find the boy, he settled in a certain country, and became very wealthy. One day he got a glimpse of his son for a moment, and recognised him.

He thought: "If I take hold of him at once, he will fear punishment from the king or a quarrel, and will run away." Accordingly he did not hold him, but left him among the beggars. When the boy came again, he bid him sweep the street, gave him plenty of food, and said: "If you do it well, you can perform some work in the house;" and he assigned him a task in the house. A little later he entrusted him with the key of the store-room.

After some time had elapsed, the father, feeling his death approach, said to the assembled relatives: "This is my son. He has been lost, but returned to me after a long period. I am aging; conduct yourselves towards him, as towards me. I place him under the mercy of the Protector."

So do the learned preceptors instruct their pupils, first beginning with easy assignments, and gradually establishing them in learning.

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Pahariya names of some Birds of Darjeeling.

By SATYA CHURN LAW.

My attempt to record the *Pahariya* names of some Darjeeling birds was made during my bird-collecting expedition to the district in May-June last on behalf of the Zoological Survey of India. I am grateful to the Divisional Forest Officer for the permit to collect in the close season and the facilities kindly offered by him and the rangers, with their subordinate staff, of the various localities I visited. The names recorded below are by no means exhaustive, partly owing to the brevity of my visit and partly to the comparative dearth of the bird-vocabulary of the local hill people and my own ignorance of their language.

The *Pahariya*, as an element in the ethnic history of Sikhim, was a late accretion in the wake of the influx of Nepali settlers which followed the British occupation of Darjeeling in 1837. The original dialects were those of the three tribes, viz., Lepchas, Bhotiyas, and Limbus, who previously formed the sole population of Sikhim, each at first having their tradition and custom distinct from those of the other. According to L. A. Waddell (*J.A.S.B.*, Vol. LX, p. 55) the Lepcha origin of the mountain and river-names of the district points to the Lepchas as being the oldest aborigines, who seem to have preceded the Bhotan Bhotiyas in the trans-Tista (British Bhotan) portion of the Darjeeling district. With the immigration of the Bhotiyas from the Tsang Province of Tibet immediately to the north of Sikhim, the Lepchas gradually became a conquered race. Timid and peace-loving as they were, they were supplanted by the aggressors and relegated to their native woods. They appear, however, to be born naturalists and possess a name for nearly every natural product, animal or vegetable, discriminating between the various mountains and rivers, birds and plants. The dominant Bhotiya tribes on settling in Sikhim bestowed their own names on objects and sites which were already named, the reason being due, says Waddell, partly to the meaning of the Lepcha name being 'not evident and partly to express their contempt for the Lepchas'. Hence one finds current within the district a duplication or plurality of names for sites and objects, hills and rivers, etc. The Bhotiyas, however much they held the Lepchas in contumely, were not averse to intermarriage with the latter, and this intermingling was but a step towards the self-effacement of the Lepchas themselves,—an event to which they fast contributed. More

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peaceful invaders were the Limbus, a Mongoloid race from the adjoining hills on the west of Sikhim, which apparently had a superior civilisation, but withal did not disdain to marry the Lepchas. The British occupation of Darjeeling marked an epoch in the history of local ethnology. For, pursuant to the policy of the British Government in the peopling of the hitherto sparsely populated tracts of the district, there followed during the few subsequent decades a great influx of settlers from eastern Nepal composed of numerous distinct tribes, e.g., Newars, Kiranti, Murmi, Gurung, Mangar, etc. From a linguistic point of view the dialects of these settlers were practically homogeneous, as they mostly had adopted the Sanskritic *Parbatiya* along with the Hindu rituals of their Gorkhali rulers. The immediate consequence was the introduction of another element in the ethnic constitution. The dialect of the Nepali highlanders was latterly adopted by the Limbus. Contrary to what might be expected, the Nepali synonyms for already-named rivers, mountains, and sites are lacking in individuality. They are in most cases perverted copies or corruptions of the Lepcha or Bhotiya and sometimes of the current Bengali names. Grammatical accuracy can hardly be expected. The names, as regards their meaning, may be generally classed as descriptive. Mr. Herbert Stevens has rightly recorded that 'the Pahariya is not a close observer, confining his attention in particular to the various trees, bamboos, etc., as chiefly concerning his everyday wants. This trait seems to be developed in more primitive people, for, whereas the Lepcha has a name for each species of bird, the Pahariya, if he does recognise differences, is merely content in relegating birds of similar form and habits under one heading, as his bird-vocabulary is very limited. Neither has the younger generation got the grasp of the subject, and the increase of often spurious knowledge, instead of sound common sense education, may have something to do with their losing touch with nature' (*J.B.N.H.S.*, XXIX, p. 511).

The undernoted *Pahariya* names are invariably those of some birds of the district, which were breeding at the time of my visit and whose young, in most cases, were, with the aid of local *chokras* or hill boys, obtained by me. It is very striking that the elderly folk are utterly out of touch with nature and can hardly utter a name distinguishing one bird from another. It is the stay-at-home little boys who seem to know many birds and apply distinctive names to them. Many of these boys, however, have a devilish propensity for robbing birds of their nests and young.

KAK. A term, evidently adopted from Sanskrit, denotes a crow, both *Corvus macrorhynchos intermedius* (Adams) and *Corvus splendens splendens* (Vieill.). *Kak-jhora* in Darjeeling derives its name from the crowd of crows which congregate

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round the municipal rubbish heap which was formerly situated close to the *Jhora*.

LAM PUCHARI. Stevens (*J.B.N.H.S.*, Vol. XXIX, p. 514) records this *Pahariya* name for the Blue Magpie, *Urocissa flavirostris* (Blyth); the Green Magpie, *Cissa c. chinensis* (Bodd.), being known as *Dhori Koili*.

KOKILA. The Himalayan Tree Pie, *Dendrocitta formosae himalayansis* (Blyth).

LEK-BHALI. The Himalayan Nut-cracker, *Nucifraga caryocatactes hemispila* (Vig.).

CHI-CHIN-KOTI. Green-backed Tit, *Parus m. monticolus* (Vig.). This name obviously derives its origin from the characteristic notes of the bird.

CHAR-CHARI. Black-headed Sibia, *Leioptila c. capistrata* (Vig.). A very common bird in the Darjeeling district, of sprightly notes and overactive habits.

FISTA. *Ixulus f. flavicollis* (Hodgs.). Birds diminutive in size, noisy and gregarious are all grouped under *Fista*.

GYRALI. Another name for *Ixulus f. flavicollis* (Hodgs.), bestowed probably because of the crest or erectile feathers on the bird's head.

CHAR-BARI. *Leiothrix lutea calipyga* (Hodgs.). This name is descriptive of the noisy, gregarious and overactive habits of the bird.

JHAR-JHARI. Stevens records this name for the Red-billed *Leiothrix*; it is according to him, probably also used for *Mesia a. argentauris* (Hodgs.).

KAKI. The Himalayan Black Bulbul, *Microscelis p. psaroides* (Vig.).

KALI-GYRALI. Bengal Red-vented Bulbul, *Molpastes cafer bengalensis* (Blyth).

SOOL-SOOLI. Sikhim Tree-creeper, *Certhia d. discolor* (Blyth).

DYIRE. Dark-grey Bush-chat, *Rhodophila f. ferrea* (Gray).

DHABINI. Plumbeous Red-star, *Rhyacornis f. fuliginosus* (Vig.). The name evidently denotes the bird's predilection for *jhoras* and cascades, which the washerman visits for washing clothes.

Dhabini also denotes the Eastern Spotted Forktail, *Enicurus maculatus guttatus* (Gould), from its habit of haunting similar waterfalls and hill-streams.

CHANCHAR. Grey-winged Ouzel, *Turdus boulboul* (Lath.).

CHARCHAR. Stevens mentions this *Pahariya* name as applicable to all Blackbirds and Rock Thrushes. I find, however, that Chanchar instead of Charchar is the name exclusively used for the Grey-winged Ouzel, which is very common and familiar throughout the district and highly prized as a song bird. The Rock Thrush has a different *Pahariya* name as mentioned below.

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SUGĀNEY. Chestnut-bellied Rock Thrush, *Monticola rufiventris* (Jard. and Selby.).

KALCHURA. Evidently a corruption of Kalchara or Blackbird, a term applied to the Himalayan Whistling Thrush, *Myophonus cæruleus temminckii* (Vig.). Stevens records (*J.B.N.H.S.*, XXX, 362) 'Kholchara' for this bird.

HARINI. Verditer Blue Fly-catcher, *Eumyias t. thalassina* (Swains.).

NAKLEY-CHARA. White-throated Fantail Fly-catcher, *Leucocirca a. albicollis* (Vieill.). The name evidently signifies the antics and frolicsome disposition of the bird.

BHADRAYA. Indian Black-headed Shrike, *Lanius n. nigriceps* (Frankl.). This name is general for all Shrikes.

RANI-CHARA. Minivets generally, though the Short-billed Minivet, *Pericrocotus brevirostris affinis* (Horsf.), which is very common in Darjeeling, is often denoted.

RUPI. Common Myna, *Acridotheres t. tristis* (Linn.).

BHANGERA. House-sparrow, *Passer domesticus indicus* (Jard. and Selby.).

LARCHI. The Assam Black-naped Green Wood-pecker, *Picus canus gyldenstolpei* Stuart Baker.

NAIWOOL. The great Himalayan Barbet, *Megalaima virens marshallorum* (Swin). This is a common bird in Darjeeling; seldom visible, as it hides itself among leafy boughs of tall trees in the Birch Hill and other forests but declares its presence by its loud and continuous calls.

CUCKOO. The Himalayan Cuckoo, *Cuculus optatus* (Gould).

GIDA. Vultures generally.

LHEMA GIDA. Stevens has recorded (*J.B.N.H.S.*, XXX, 874) this *Pahariya* name for the Bearded Vulture or Lemmergeyer, *Gypaëtus b. barbatus* (Storr).

HALISA. The Kokla Green Pigeon, *Sphenocercus sphenocercus* (Vig.).

HUKAS. Hodgson Imperial Pigeon, *Ducula badia insignis* (Hodgs.).

KALIJ. The Black-backed Kalij Pheasant, *Gennæus leucomelanos* (Lath).

MOUNAL. The Pahariyas bestow this name on the Crimson Horned Pheasant, *Tragopan satyra* (L.), rather than on *Lophophorus impejanus* (Lath). In the Western Himalayas, the term is applied by ornithologists to the latter bird.

SIMKUKRA. The Wood-cock, *Scolopax rusticola rusticola* (L.).

CALCUTTA,
December 12, 1930.

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Dhenkānāl Grants of Raṇastambha and Jayastambha.

By A. Banerji-Sastri.

The two copper plates edited below, belong to the Chief of Dhenkānāl, one of the Orissa Feudatory States, lying between 21° 11′ and 20° 31′ N., and 85° 10′ and 86° 2′ E. About March 1929, the Dīwān of the State sent them over to the late Mr. E. A. Horne, then Principal of Patna College, and Honorary Secretary of the Bihar and Orissa Research Society. Mr. Horne handed them over to me with a request that I should edit them. On further inquiry, I came to know that they have been in the possession of the Chief's family for a long time, and are treated as heirlooms. No other data are available.

In plate A of Raṇastambha (Pls. 17 and 18), the inscription has been incised on both sides of a single plate of copper measuring 7″ × 5½″, and the letters measure $\frac{3}{8}$″ on the average. A round seal of the same metal is affixed to the left of the plate. The impression on the seal is circular and consists of a plain circle with a row of lotus petals along its circumference. The circle is divided into two unequal parts by two raised parallel lines. Just above the dividing line, are some worn-off letters evidently bearing the king's name. Below the line, is a deer couchant with a bough or some foliage in its mouth. The rest of the seal is blurred. The inscription consists of 33 lines, and records the grant of a piece of land to Bhatta Sudarśanadeva, in the village of *Tyalyaketu*, by Raṇastambhadeva from Kodāloka. The record was inscribed by one Mahokaya, and the eulogy composed by Ripubhañja Kalyānadeva.

The *characters* belong to the 9th-10th century A.C., and the *language* is fairly correct Sanskrit, with a few mistakes, pointed out in the foot-notes to the text below. It is in prose. In *orthography*, the distinction between *va* and *ba* is not always maintained.

Another grant of Raṇastambha *alias* Kulastambha is known, and has been edited twice in English and twice in Bengali :—

(1) *Epigraphia Indica*, Vol. XII, pp. 156–9.
(2) *Archæological Survey of Mayurbhanja*, Vol. I, pp. 157 ff.
(3) *Baṅger Jātīya Itihāsa, Vaiśya Kāṇḍa*, pp. 303-04.
(4) *Journal of the Baṅgīya Sāhitya Pariṣat*, Vol. XVIII, part I, pp. 59 ff.

Supposing Kulastambha to be another name of Raṇastambha, two more grants of the same king have been edited by

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Man Mohan Chakravarty in the Journal of the *Asiatic Society of Bengal*, 1895, pp. 123–27.

In plate B of Jayastambha (Pls. 19 and 20), the inscription has been incised on both sides of a single plate of copper measuring $8\frac{3}{8}'' \times 5\frac{5}{8}''$, and the letters measure $\frac{1}{4}''$ on the average. The seal, affixed in the same way as in plate A, is larger (3″) and well-preserved. The impression on the seal is circular and consists of a plain circle with a row of lotus petals along its circumference. The circle is divided into two equal parts by the line of letters (measuring $\frac{3}{8}''$) forming the king's name Śrī-Jayastambhadeva. In the upper part is a deer couchant with a bough or some foliage behind it and a crescent over its back. The lower part of the circle is occupied by an expanding lotus flower. The inscription records the grant of a piece of land to Dhirivvaraṅgati-śarmā, son of Chāsaṅgaturda, and grandson of Mandrabhūti-śarmā, in the village of Kameśirsa, in the district of Tagakula, by king Jayastambha. Four generations of the dynasty founded by the favour of *śrī-Stambheśvarī*, in the family of Śūklikaṃśa, are mentioned in the inscription :—

Kāñchanstambha.
|
Kaṇadastambha (Vikramāditya).
|
Alānastambha.
|
Jayastambha.

In *language* and *orthography*, this plate resembles plate A. The *characters* seem to be a few years later than plate A. The language, also, of 31 lines in prose, is more incorrect.

The *importance* of these two plates lies in

(*a*) correcting previous readings in the other inscriptions of the same family: e.g., 'Raṇastambha', not 'Ralastambha' as read by M. Chakravarty, *J.A.S.B.*, *ibid.*, p. 125; 'Kaṇadastambha', not 'Kalahastambha' as read by R. D. Banerji, *E.I.*, *ibid.*, p. 157;

(*b*) supplying further information about the Śūklivaṃśa dynasty by recording another line and another generation in Alānastambha and Jayastambha.

Thus, they substantially supplement the information available from the previously known inscriptions referred to above.

The readings published in *J.B.O.R.S.*, Vol. II, Part IV, necessitated a more careful and revised edition: cf. R. D. Banerji, *History of Orissa*, Vol. I, pp. 194–96.

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Dhenkānāl Plate of Raṇastambhadeva

Text

(*Plate A, First side.*)

1 Om svasti (||) Prabhūta-sukṛt=odaya-sampravṛddha-lakṣmī-
2 llavāra - nṛpa - vāhu-val=āvalopa-nirbhar - ṣit=ānya - pura-
3 guṇ-ā-nubhāvāt anek=ābhradhva-ja-
4 deva - kula - sudhā - dhavala - vahal=āloka - janita - sankala-
digantar=ālokāt *Kodālokāt*
4 deva - dvijāti - guru - bhakti - guṇ = opapanna - śrīmāṃ [1]-
5 pratāpa-nata-hasta-bhūbhṛt-samūhaḥsañchāra-
5 sāra-parit=ā [2] ṣaṇ[ṇ]a-kalpavṛkṣaḥ satyāśrayo ripu-val=
endhana-dīptak=āṅgaḥ para-
6 ma-māheśvaro mātā-pitṛ pād=ānudhyātaḥ samadhigata-
pañcha-mahā-śabdaḥ sama-
7 sta-mahā-sāmant=ādhipatiḥ *śrī-Raṇastambhadevaḥ* kuśalī |
Iheva-viṣaya-prati-
8 ba-ddha-Kalamyoṅga-grāme | Varttamāna-bhaviṣya- kāli [3]
norājānaka-rājaputra-mahā-
9 sāmantā sāmanta-purogāś-cha pūja [yati] yathārhaṃ
bo(dha)yati kuśalayaty=ādiśati
10 cha viditam-astu-bhavatām (||) grāmo=yam *Tyalyaketu* Tra-
varnitata=samīpaka sīmā=
11 sti [4]rna Sagdhiyo-samsakta-grāmasya pāda-śālinī-bhūmiḥ |
upari sa-
12 mvidya paśchimasyāṃ diśi Jādā-paryanta-balayībhūta-sīmā-
vīnirṇṇayaṃ kṛ-
13 tvā anyatamāsv=api dikṣu yathāpūrvva-vyavasthit-ānyaka-
sīmāsthānāni cha pari-
14 kalpya | Satata-homa- svādhyāya-japa- tapo-niyama-bhavi-
tātmane ved=odita-kri-
15 yā-karaṇ=āhita mānasāya deva-dvija-gurujan=ātithi-
bandhusaparyā-samā-
16 hita - chetase | bhagavad-Gotama - gotra - sambhav=āmba -
pāya Vājasene [5]-Kāṇva-Bhṛ-
17 gvadhvāyine bhaṭṭa-*Sudarśanadevāya* Mātā-pitur=ātmanaś-
cha puṇy=ābhivṛ-
18 ddhaye āchandrārkka-vyavasthayā su-karaṇena sarvva-
bādhā-varjjitena tāmra-śasa
19 [ne]na-purvvakeṇ [6]a | Asya kula-devatā bhagavatī-
Stambheśvarī |

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[1] Read *śrīmān-*. [2] Read *-āsanna-*. [3] Read ° *līno* °.
[4] Read ° *stīr* °. [5] Read ° *na* °. [6] Read ° *na* °.

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(*Plate A, Second side.*)

20 saśarī[ri]kāṃ sākṣātīkṛtvā[1] pratipādit-āsmābhir=yad=etad-
dānam=asmat-
21 kulajo=nyatamo vā pratipālayati tasya gotr=ābhivṛdhir=
mahad=ārjitya[ta]ṃ cha bha-
22 vati | yo=nyathā kurute tasya sarvv=āti-vichchhedo rājya-
bhraṃśatā cha | ato bhavadbhir=dharmma-
23 gaurā[2]vad=asmad-atunodhāch[3]=cha pratipālanīyam=idaṃ
| Uktaṃ=cha bhagavatā Vedavyāse-
24 na Vyāsena | samāno-yaṃ dharmmasetu[r]nṛpāṇāṃ kāle-
kāla(e) pālanīyo bhavad
25 bhiḥ | Bahubhir-vvasudhā dattā rājabhiḥ | Sagarādibhir=
yasya yasya yadā bhūmis=ta
26 sya tasya tadā phalaṃ sva-dattām para-dattām=vā yo
hared=vasudhāṃ=iha sa viṣṭhāyāṃ
27 kṛmir=bhūtvā pitṛbhiḥ saha pachyate || suvarṇṇam=ekam
gām-ekām bhumer=apy=eka-
28 m=aṅgulam hara(n) narakam=āyāti yāvad=ābhuta-saṃ-
plavaḥ[4] || Mā bhūd=aphala-sa-
29 ṅkā vaḥ para-da(t) t=eti pārthivāḥ (|) sva-dattāt-phala-
mānantyaṃ para-datt=ānupālanam (||)
30 Iti kamala-dal=āmbu-bindu-lolāṃ śriyam=anuchīntya
manuṣya-jivitaṃ = cha sakala-
31 m=idam-udāhṛtaṃ = cha budhvā na hi puruṣaiḥ para-
kīrttayo vilopyāḥ (||) *Sambat*
32 *83 Kārttika va da* (||) Likhitā praśasti Ripubhañja Kalyāna-
deveneeti Bā-
33 ṇi-putra Mahokayā[5] utkirṇ eti || iti.

TRANSLATION.

(Ll. 1–3.) Om, Hail. From *Kodāloka*,[6] which has surpassed all the worlds by the power of prosperity fully developed by rise due to manifold good activity, which has ousted the prestige and virtue of other cities by wiping them with the strength of arms of its wrestling king, which has lighted up all the quarters by producing multifarious light from the many white-washed temples with their flag-staffs in the sky,

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[1] Read °*tya* °. [2] Read *-gauravād=*.
[3] Read =*asmadanurodhāch=*. [4] Read °*vaṃ*. [5] Read °*yena*.
[6] M. Chakravarty's plates read *Kodālo : J.A.S.B.*, vol. LXIV, p. 125. R. D. Banerji says—'The name of the country read as *Kēdāla* in those plates is very clearly written as *Kōdālō* in the Talcher plate, and this is probably the correct reading', *E.I.*, vol. XII, p. 157. R. D. Banerji is extremely careless in attributing to M. Chakravarty the reading as *Kēdāla* whereas the latter read as *Kōdēlō*. The present Dhenkānāl plate makes the reading absolutely certain, as *Kodālo-ka* (*ka* in *svārthe*) by making it rhyme with the two words ending in *—lo*, in lines 1 and 3.

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(Ll. 4–7.) the illustrious *Raṇastambhadeva*, possessing the virtue of devotion to gods, the twice-born and the preceptor, endowed with prosperity, by whose valour is lowered the hands of the assemblage of kings, the wishing-tree that is ever near and its bounty moving around, the prop of truth, whose limbs are kindled by the fuel of enemy-forces, the devout worshipper of Maheśvara, having meditated on the feet of his mother and father, having acquired the five great sounds, the overlord of all the *mahāsāmantas*, being in good health,

(Ll. 7–19.) in the *Kalamyoṅga* village, comprised in the district of *Iheva*,—honours, duly instructs, greets and orders the present and future *rājānakas*, *rājaputras*, *mahāsāmantas*, *sāmantas* and leading citizens—be it known to you (that) this village *Tyalyaketu*, near *Travarnitata*, stretching within its boundaries, is the plot of land at the foot of the village adjacent to *Sagdhiyo*; surveying from the top, making a settlement of the boundary in the form of a belt, around *Jādā* in the western direction, having also determined the other boundary spots as settled hitherto in the other directions; has, by means of the aforesaid copper-plate charter, immune from all limitations, by a good writer of legal documents, by the ordinance of the duration of the moon and the sun (been given), in order to increase the merit of my mother and father and myself, to *bhaṭṭa Sudarśanadeva*, whose heart is set upon perpetual *homa* (sacrifice), Vedic study, meditation, asceticism and regularity; whose mind was intent upon the performance of tasks ordained in the Vedas; whose heart is concentrated on looking after gods, the twice-born, superiors, guests and relatives; who looked after women, being born in the *gotra* of the venerable Gotama; who studied the Vājasenīya, Kāṇva and Bhṛgu (*śākhās*). His (the king's) family goddess is the adorable *Stambheśvarī*, whom having seen with his own eyes in a bodily form, he has installed.

(Ll. 20–23.) This gift by us, our descendant or whoever else maintains, to him shall accrue increase of *gotra* and wholly straight (path); whoever acts otherwise, to him total deprivation of everything, and loss of kingdom. So this is to be maintained by you because of respect to *dharmma*, and also my request.

(Ll. 23–31.) Land has been given by many kings, Sagara and others; to whomsoever belongs the land at that time, to him at the time the fruit (of such grant). (Continue the rest of the customary verses[1]—ending with—'The good

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[1] *ā-bhūta-saṃplavaḥ* (read—*saṃplavaṃ*), 'till the annihilation of all being'. In the Ramganj Copperplate of Iśvaraghoṣa (N. G. Majumdar,

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deeds of others should not be effaced by people considering that fortune as well as human life is as unsteady as a drop of water on a lotus petal, and also realizing all that has been cited above'.

(Ll. 31–33.) Saṃvat 83 Kārttika *Vada*.[1] This eulogy has been written by *Ripubhañja Kalyānadeva*. It has been engraved by Mahokaya, son of Bāṇi. Here it ends.

Dhenkānāl Plate of Jayastambhadeva.

Text.

(*Plate B, First side.*)

1 om svasti (||) Jayanti bhujaga-bhoga-paramāṇavaḥ (||) sarvajñāḥ sarvakrid-vyāpi-Hara-pādābja-reṇa-

2 vaḥ(||) Svasti(||) Tṛ[2]bhuvana-vidite-*Śūklivaṃśe*-vaṃśabhūṣaṇo rājā āsīt || *Kāñchanastambhaḥ*

3 nija-bhuja-vajra-vivijita-durddhara-vairī[3]-vāraṇa-girīndrāj =jātas=tato mā[4]hano nṛpatiḥ

4 śrī-Vikramāditya apara-nāmadheyaḥ śrīmāṃ[5]-*Kaṇada-stambhaḥ* tasmād=asādhāraṇa-

5 sāhas[6]ādyataḥ pratāpa-bhasmīkṛta-vaira-vigrahas-[7]tivagra-hastavagdhu-samma[8]nita sādhu-

6 [9]mmatiḥ pṛthivyam prathito vyajāyataa (||) Durvvār-ā rikarīndra-kumbha-dalana-vyāuola-

7 muktā-pala-phal-āpāta-samudgataḥ graham=iva vyāptaṃ nabho=nekaśaḥ yēn=āneka-yu-

8 gen=a[10]-dhikṛta-vṛtaṃ-prodhṛtya-sammānita-samyakk[11]-supūrito[12]-ditya[13] yasya balah sama

9 damā (||) yasya śeṣabdhi-śubhrā[14] mās=ādyardhvaśa[15] vibhāna[16]śa-maṇ-ḍale ja[ya]dvipa[17]-chandr-āvadat-ojvalā[ḥ]

10 ādadhyā ch-ā para-nirmmala-guṇair-vāchālatāḥ śādha-vomṛtyu-nivahanā(||)karoti su

11 tarām-indro-pi yasmai syāt (||) Sakala-bhūpāla-mauli-mālālalita-charaṇa-yugalo

12 nirmmala-karavāla-kiraṇa-jāla-kālaka-bhāsurako Chāllākāye-vāsi śrī-Stambheśvarī-labdha-vara-

13 prabhāvo mahānubhāvaḥ parama-māheśvaro śrī-*Alānastambho*=bhūt (||)

Inscriptions of Bengal, p. 155, and plate line 40) occurs the word *āhūti-saṃplava*.

[1] dark fortnight of Kārttika, Samvat 83.

[2] Read *Tri°*. [3] Read *-vairi°*. [4] Read *mohano°*.

[5] Read *Śrīmān*. [6] Read *sāhas=odyataḥ*.

[7] Read *trivarga-hasta-bandhu-*. [8] Read *-Sammānitaḥ*.

[9] Read *sādhumatiḥ*. [10] Read *°genā °*. [11] Read *samyak°-*.

[12] Read *°tā °*. [13] Read *°āḥ °*.

[14] Read *śeṣ=ābdhi-śubhrā*. [15] Read *mās=ādy=ardhvaśaḥ*.

[16] Read *vihāyasa-*. [17] Read *jaya-dvīpa-*.

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14 sūta[ḥ] śrī-*Jayastambha-rājā* samadhigata-pañcha-mahā-
śabdo parama-bhaṭṭārakaḥ kuṣ[1]alī maṇḍa-
15 le=smin varttamāna-bhaviṣya-mahā-sāmanta-mahā-rāja-
rājaputrān rājñī-kumār-ā māty=opa-
16 rika-viṣayapati-tad-āyuktaka-daṇḍapāśika-sthān=ā-dhuri-
kān=anyān-api rāja-prasādi
17 naḥ caṭṭa-bhaṭṭa-vallabha-jātiyān || Bala-bhi[2]ta-sāmanta-
sāma-vā[3]jita-pado

(*Plate B, Second side.*)

18 pustaka-pāla-kaṇṭakāla-sādhya[4]dhikaraṇaṃ yathārham-
mānayati bodhayati sa-
19 mājñāpayati viditam=astu bhavatā[m] || Tagakula-khaṇḍe
kagta-vimūlya *Kameśirsa-*
20 grāmaḥ || [5]sasanīkṛtaḥ svatantraḥ vāryaḥ || no[6]ra-kuṭṭa-
śauṇḍik=ādi-sa-prakṛtikaḥ ||
21 yodha-chaṭṭa-ghaṭṭan=ādi-tatra-sthan=ādi-guṇy[lm]aka-
-sarvva-pīḍā-varjjito bhall=ā-śva-ni[7]-praveśo
22 eṣo bhūmichchhidr=āpi (di)-van=nyāyena chandr-ārka-
kṣita-sama-kālaṃ || mātā-pitror-ā
23 tmanaś=cha puṇy-ābhivṛddhaye Hastipada-vinirggata-
Yasāṭay=āvāśa[8]-Gaṅgā-pari
24 Śuṅga-pravara-Mandrabhūti-śarmaṇaḥ chitra-dī-kṣitasya
naptre Chāsaṅgaturda
25 chitra-dīkṣitasya putrāya Dhirivvaraṅgati-śar-maṇa (ne)
chitra-dīkṣitāya grāmo=yaṃ śā-
26 sanīkṛ taḥ chatu[9]-sīmmā-paryantaḥ-āchandrārka-kṣitiḥ
śauravā 1 || bhavadbhīḥ para-
27 pālanīyaḥ || Uktaṃ=cha dharmma-śāstre bahubhir-vasudhā
dattā rājabhiḥ Sagarā[di]bhiḥ | Yasya
28 yasya yadā bhūmis=tasya tasya tadā phalaṃ || Mā bhūd=
aphala-saṅkāvaḥ para-datt=eti pā-
29 rthivāḥ||Sva-dattāt phalam-ānantya[10]para-dattā-nupālanaṃ||
Sva-dattām-para-dattom=vā yo hareta
30 vasundharāṃ sa vī[11]ṣṭhāyāṃ kṛmir=bhūtvā piṭṛbhiḥ saha
pachyate || Bahunā tu kim=uktena satye[12]-
31 vādī[13]-dam-uchyate.

Translation.

(Line 1.) Om. Hail. Victorious are the dusts of the foot-lotuses of Hara, all-knowing, all-performing and pervasive —where the atoms are of the size of the world.

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1 Read *kuśa°*. 2 Read *bhīta-*. 3 Read *rājita-*.
4 Read *—ā°*. 5 Read *śā°*. 6 Read *na°*.
7 Read *niṣpra°*. 8 Read *=āvāsa*. 9 Read *°tus=sī=mā*.
10 Read *°yaṃ°*. 11 Read *viṣṭhā°*. 12 Read *°ya°*.
13 Read *vādin=edam-*.

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(Ll. 2–13.) Hail. There was a king *Kāñchanastambha*,[1] an ornament of the *Śūklivaṃśa*[2] family, known in the three worlds. From him who with the thunderbolt of his own arm completely conquered the unrestrainable enemy-elephants (looking like) the kings of mountains, then was born the charming king, the illustrious *Kaṇadastambha*, bearing the other name *śrī-Vikramāditya*. From him was born he, elevated by uncommon courage, who by prowess turned to ashes hostile bodies, honoured by the friendly hand of the three castes, of pious mind, and famed on earth; soaring up to throw down the pieces of 'muktā'-(pearl-) fruits shaken by the crashing of the frontal lobes of the elephant-kings belonging to his irresistible foes; by whom was covered in many directions the horizon, like this planet; whose forces, performing pacification and chastisement, strongly upholding conduct sanctioned by many a cycle, by which was honoured and thoroughly covered the solar system; whose (forces) were shining white with the moon of his victory-lamp in the firmament of the sky in the (bright) half of the month, white as the last ocean; and grown eloquent by other pure virtues, good, they were the vehicles of death: so he does for ever, even Indra should be for him: thus was born the illustrious *Alānastambha*, with his two feet graced by the wreaths on the heads of all the kings, resplendent with the fatal multitude of rays from his spotless sword, residing at *Challakāya*, with power due to blessing obtained from the illustrious *Stambheśvarī*, the high-spirited, the devout worshipper of Maheśvara.

(Ll. 14–19.) (His) son, the illustrious king *Jayastambha*, having acquired the five great sounds, the highly worshipful person, being in good health—duly honours, instructs and orders the present and future *mahāsāmantas*, *mahārājās*, *rājaputras*, *rājñī-kumāras*, *amātyas*, *uparikas*, *viṣayapatis*, their employees, *daṇḍapāsikas*, *sthānādhurikas*, those others also dependant on the king's favour, those belonging to the class of Chaṭṭa,[3] Bhaṭṭa, and Ballabha; he with his feet adorned by the peace-offering of vassals afraid of his power,—to the *pustaka-pālas*, the *Kaṇṭa-kālas* and *sādhyādhikaraṇa*—in this province—

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[1] *E.I.*, vol. XII, p. 158, *n.* 15.

[2] In the grants of Kulastambha edited by Man Mohan Chakravarty in *J.A.S.B.*, 1895, No. 2, p. 125, and by R. D. Banerji in *E.I.*, vol. XII, p. 157, is read *Śūlkī-*°.

[3] *chaṭṭa*, 'irregular soldiers', *E.I.*, vol. XI, p. 19: 'flatterer', *E.I.*, vol. XI, p. 176: 'rogue', *E.I.*, vol. IX, pp. 296, 299: 'the head of a *parganā*', Vogel, *Chamba*, pp. 130–32.

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(Ll. 19–22.) Be it known to you: in the district[1] of *Tagakula*, is the labour-free village of *Kameśirsa*; it is granted, and is to be protected as free; containing labourers, grinders, distillers, etc.; immune from all exactions by military officers, roaming of regular and irregular soldiers and others pertaining thereto[2]; not to be entered by archers and horsemen; this by the principle of *bhūmichchhidra*[3] and so on; enduring as long as the moon, the sun and the earth;

(Ll. 23–26) in order to increase the merit of my mother, father and myself; this village bounded by its four boundaries, lasting as long as the moon, the sun and the earth, has been granted by a charter, to *Dhirivvaraṅgati-śarmā* the well-initiated, son of the well-initiated *Chāsaṅgaturdą*, grandson of the well-initiated *Mandrabhūti-śarmā*, of the Śuṅgapravara, residing in *Yasāṭaya*, demarcated from *Hasti-pada*: day of Saturn.

(Ll. 26–31.) Others' gift should be maintained by you. And it has been said in the *Dharmaśāstra*, (Follow four and a half of the customary verses.) Needless, indeed, to say much; it is said by the truthful.

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[1] *khaṇḍe*, 'a section of a province': Fleet, *Corps. Ins. Ind.*, vol. III, p. 32, *n.* 7.

[2] *gulmaka*, 'an overseer or superintendent of forests', Kielhorn, *E.I.*, vol. IV, p. 253, *n.* 9: Fleet, *Corp. Ins. Ind.*, vol, III, p. 52, *n.* 4: 'a military or police officer,' Vogel, *Chamba*, p. 127: 'a custom receiver on highways', *Mahāvyutpatti*, p. 33.

[3] *bhūmichchhidra-nyāya*, 'land (*bhūmi*) unfit for cultivation (*chhidra*) *Vaijayantī*, and Kauṭilya's *Arthaśāstra* (*Ind. Ant.*, 1922, p. 77): cf. *bhūmichchhidraṅ-cha akiñchitkara-grāhyam*, 'uncultivable land is not taxable', *E.I.*, vol. XIX, p. 121, *n.* 3 (Kamauli plate of Vaidyadeva): other interpretations, *Ind. Ant*, vol. I, p. 46, *n.*, vol. IV, p. 106, *n.*; Fleet, *Corp. Ins. Ind.*, vol. III, p. 138, *n.* 2; *E.I.*, vol. XI, p. 177.

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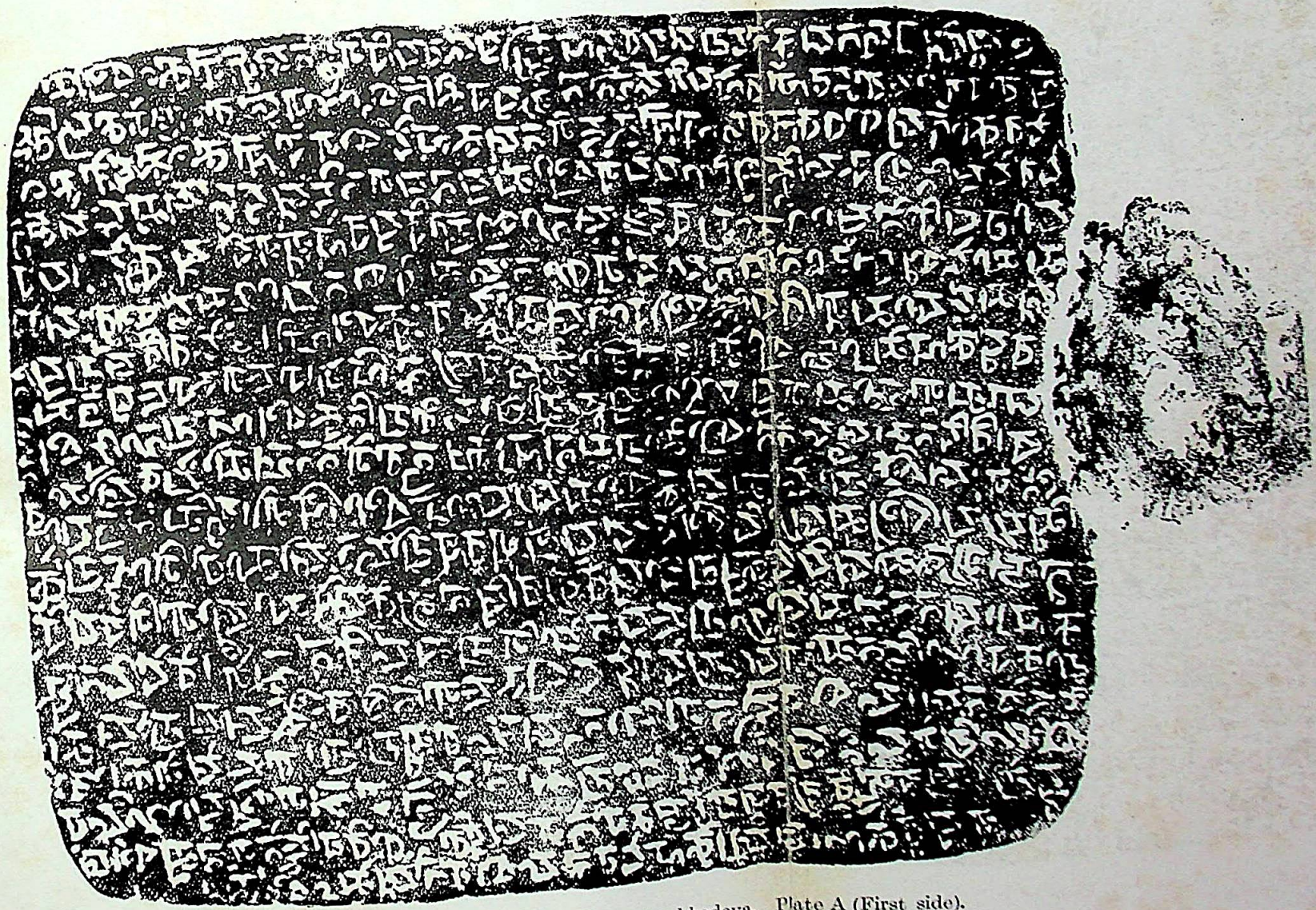

Dhenkānāl Plate of Raṇastambhadeva. Plate A (First side).

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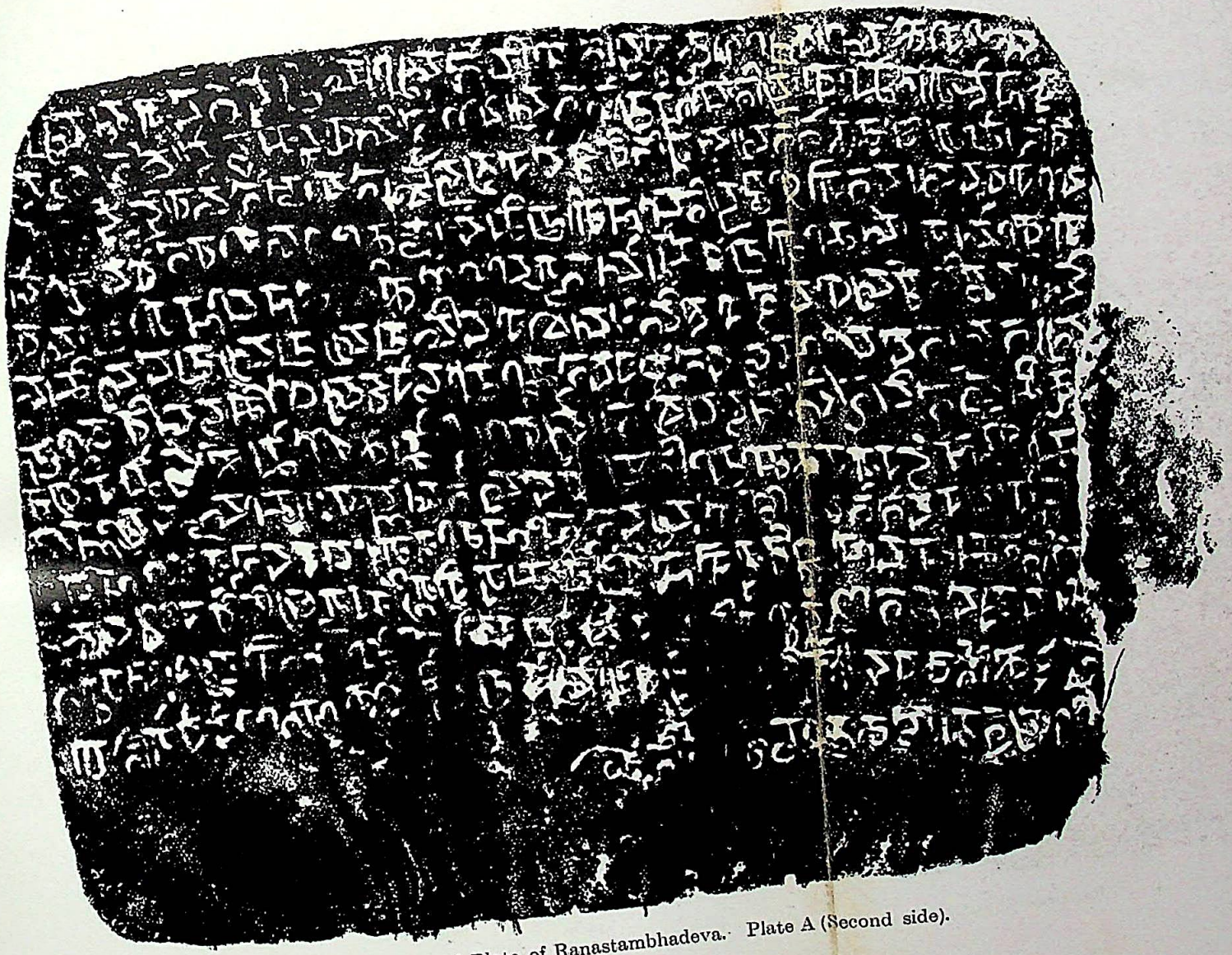

Dhenkānāl Plate of Raṇastambhadeva. Plate A (Second side).

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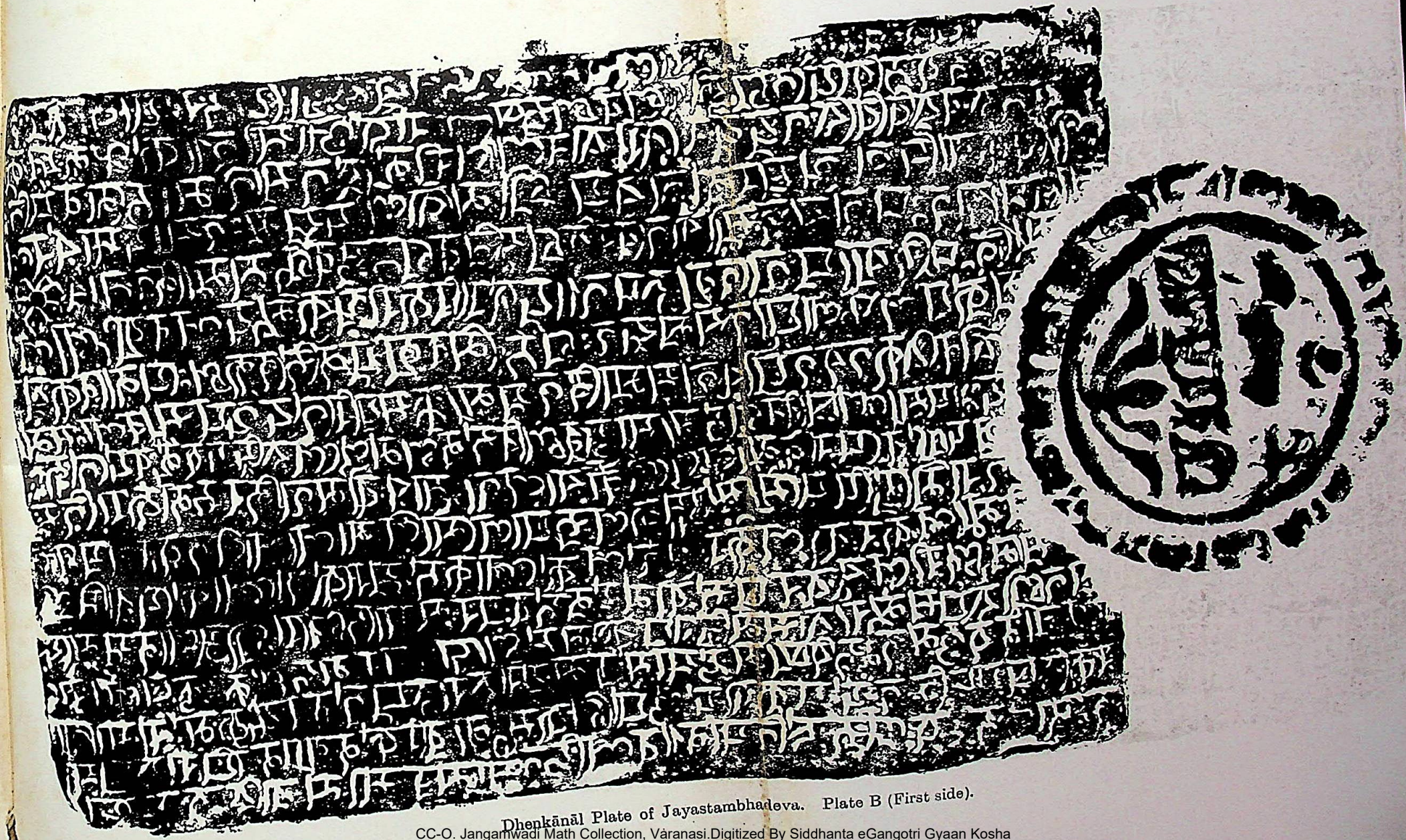
JPASB, XXVII, 1931.



Dhenkānāl Plate of Jayastambhadeva. Plate B (First side).

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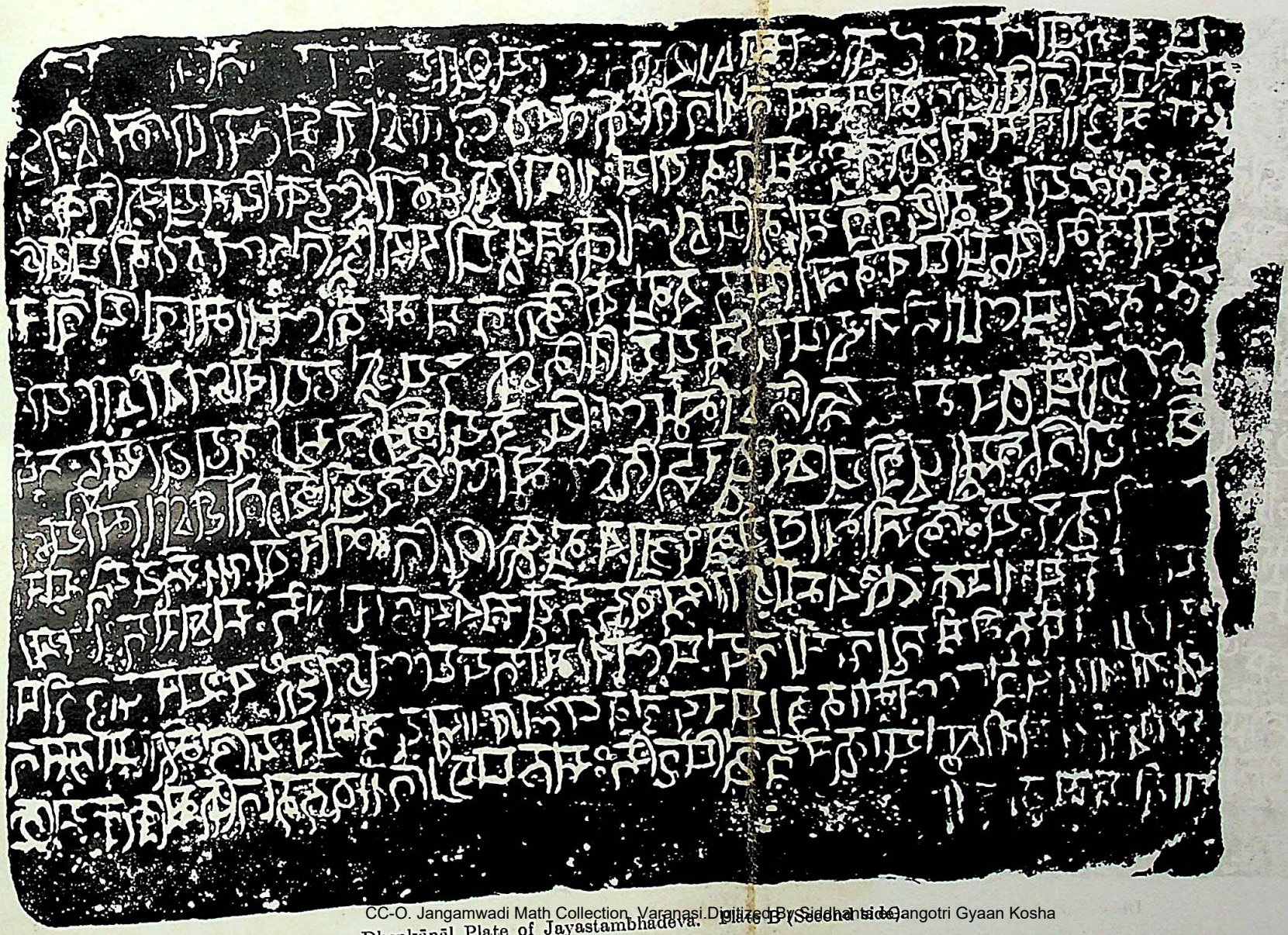

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Dhenkānāl Plate of Jayastambhadeva. Plate B (Second side).

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